

Glossary



%Systemroot% The folder where the Windows boot files are located. This is by default the C:\Windows or C:\WINNT folder.

1.44 MB The storage capacity of a typical 3.5-inch floppy disk.

10BaseT An Ethernet LAN designed to run on UTP cabling. 10BaseT runs at 10 megabits per second. The maximum length for the cabling between the NIC and the hub (or switch, repeater, etc.) is 100 meters. It uses baseband signaling. No industry standard spelling exists, so sometimes written 10BASE-T or 10Base-T.

100BaseFX An Ethernet LAN designed to run on fiber-optic cabling. It runs at 100 megabits per second and uses baseband signaling. No industry standard spelling exists, so sometimes written 100BASE-FX or 100Base-FX.

100BaseT A generic term for an Ethernet cabling system designed to run at 100 megabits per second on UTP cabling. It uses baseband signaling. No industry standard spelling exists, so sometimes written 100BASE-T or 100Base-T.

1000BaseT Gigabit Ethernet on UTP.

16-bit Able to process 16 bits of data at a time.

16-bit ISA bus Also called the **AT bus**. A bus technology introduced with the first AT computers.

2.1 Speaker setup consisting of two stereo speakers combined with a subwoofer.

24-bit color Referred to as 24-bit or true color, using 3 bytes per pixel to represent a color image in a PC display. The 24 bits enable up to 16,777,216 colors to be stored and displayed.

286 Also called **80286**. Intel's second-generation processor. The 286 has a 16-bit external data bus and a 24-bit address bus. It was the first Intel processor to achieve 286 protected mode.

3.5-inch floppy drive format All modern floppy disk drives are of this size; the format was introduced in 1986 and is one of the longest surviving pieces of computer hardware.

30-pin SIMM An obsolete memory package that utilized 30 contacts to connect to the motherboard and required a whole bank to be filled before the memory was recognized.

34-pin ribbon cable This type of cable is used by floppy disk drives.

386 Also called **80386**. Intel's third-generation processor. The 386 has a 32-bit external data bus and 32-bit address bus. It was Intel's first true 32-bit processor.

3-D sound A generic term for making sounds emanate from all directions—i.e., *surround sound*—and for making sounds realistic. Popular in 3-D games and home theaters.

4.1 Four speakers and a subwoofer.

40-pin ribbon cable This type of cable is used to attached EIDE devices (such as hard drives) or ATAPI devices (such as CD-ROMs) to a system.

486 Intel's fourth-generation CPU. Essentially an 80386 with a built-in cache and math coprocessor.

5.1 Four satellite speakers plus a center speaker and a subwoofer.

5.25-inch floppy drive format The predecessor to the modern 3.5-inch floppy drive format; very rarely used currently.

50-pin ribbon cable Also called a **Type A cable**. A type of ribbon cable used for connecting SCSI-1 and SCSI-2 devices.

68-pin ribbon cable Also called a **P type cable**. There are two types of 68-pin ribbon cables: an obsolete Type B used in conjunction with a 50-pin Type A cable to connect early SCSI-2 devices and a P type that can be used singularly.

72-pin SIMM An obsolete memory package that utilized 72 contacts to connect to the motherboard, replacing 30-pin SIMMs and eliminating some of the issues with banking.

8.3 naming system A file naming convention that specified a maximum of eight characters for a filename, followed by a 3-character file extension. Has been replaced by LFN (Long Filename) support.

802.11b A wireless networking standard that operates in the 2.4-GHz band with a theoretical maximum throughput of 11 Mbps.

8086/8088 The first generation of Intel processor used in IBM PCs. The 8086 and 8088 were identical with the exception of the external data bus—the 8086 had a 16-bit bus whereas the 8088 had an 8-bit bus.

80-wire cable Also called a **D type cable**. Special type of cable used with some SCSI-3 devices that allows for devices to be hot-swapped. Alternatively, a ribbon cable used to connect ATA-66/100/133 hard drives to an ATA controller.

AC (alternating current) A type of electricity in which the flow of electrons alternates direction, back and forth, in a circuit.

access speed The amount of time needed for the DRAM to supply the Northbridge with any requested data.

ACPI (advanced configuration and power interface) A power management specification that far surpasses its predecessor, APM, by providing support for hot-swappable devices and better control of power modes.

activation The processes of confirming that an installed copy of a Microsoft product (most commonly Windows or a Microsoft Office application) is legitimate. Usually done at the end of software installation.

Active Directory A form of directory service used in networks with Windows 2000 Server and Windows Server 2003 servers.

active matrix Also called **TFT (thin film transistor)**. A type of liquid crystal display that replaced the passive matrix technology used in most portable computer displays.

active PFC (power factor correction) Circuitry built into PC power supplies to reduce harmonics.

active termination A method for terminating fast/wide SCSI that uses voltage regulators in lieu of resistors.

ActiveSync (synchronization) A term used to describe the synchronizing of files between a PDA and a desktop computer. ActiveSync is the name of the synchronization program that is used by Windows OS-based PDAs.

address bus The wires leading from the CPU to the memory controller chip (usually the Northbridge) that enable the CPU to address RAM. Also used by the CPU for I/O addressing. An internal electronic channel from the microprocessor to random access memory, along which the addresses of memory storage locations are transmitted. Like a post office box, each memory location has a distinct number or address; the address bus provides the means by which the microprocessor can access every location in memory.

address space The total amount of memory addresses that an address bus can contain.

administrative tools A group of Control Panel applets, including Computer Management, Event Viewer, and Performance.

administrator account A user account, created when the OS is first installed, that is allowed complete, unfettered access to the system without restriction.

ADSL (asymmetric digital subscriber line) A fully digital, dedicated connection to the telephone system that provides download speeds up to 9 Mbps and upload speeds of up to 1 Mbps.

Advanced Startup Options menu A menu that can be reached during the boot process that offers advanced OS startup options, such as boot in Safe mode or boot into Last Known Good Configuration.

AGP (accelerated graphics port) A 32/64-bit expansion slot designed by Intel specifically for video that runs at 66 MHz and yields a throughput of at least 254 Mbps. Later versions (2×, 4×, 8×) give substantially higher throughput.

AIX (Advanced Interactive Executive) IBM's version of UNIX, which runs on 386 or better PCs.

algorithm A set of rules for solving a problem in a given number of steps.

ALU (arithmetic logic unit) The CPU logic circuits that perform basic arithmetic (add, subtract, multiply, and divide).

AMD (Advanced Micro Devices) CPU and chipset manufacturer that competes with Intel. Produces the popular Athlon and Duron processors.

AMI (American Megatrends, Inc.) Major producer of BIOS software for motherboards, as well as many other computer-related components and software.

amperes (amps or A) The unit of measure for amperage, or electrical current.

amplifier A device that strengthens electrical signals, enabling them to travel further.

AMR (audio/modem riser) A proprietary slot used on some motherboards to provide a sound inference-free connection for modems, sound cards, and NICs.

analog An analog device uses a physical quantity, such as length or voltage, to represent the value of a number. By contrast, digital storage relies on a coding system of numeric units.

analog video Picture signals represented by a number of smooth transitions between video levels. Television signals are analog, as opposed to digital video signals, which assign a finite set of levels. Because computer signals are digital, analog video must be converted into a digital form before it can be shown on a computer screen.

ANSI (American National Standards Institute) Body responsible for standards such as ASCII.

ANSI character set The ANSI-standard character set, which defines 256 characters. The first 128 are ASCII, and the second group of 128 contain math and language symbols.

anti-aliasing In computer imaging, a blending effect that smoothes sharp contrasts between two regions—e.g., jagged lines or different colors. This reduces the jagged edges of text or objects. In voice signal processing, it refers to the process of removing or smoothing out spurious frequencies from waveforms produced by converting digital signals back to analog.

antistatic bag A bag made of antistatic plastic into which electronics are placed for temporary or long-term storage. Used to prevent electrostatic discharge.

antistatic mat A special surface upon which electronics are laid. These mats come with a grounding connection designed to equalize electrical potential between a workbench and one or more electronic devices. Used to prevent electrostatic discharge.

antistatic wrist strap A special device worn around the wrist with a grounding connection designed to equalize electrical potential between a technician and an electronic device. Used to prevent electrostatic discharge.

API (application programming interface) A software definition that describes operating system calls for application software; conventions defining how a service is invoked.

APM (advanced power management) The BIOS routines that enable the CPU to turn on and off selected peripherals.

archive To copy programs and data onto a relatively inexpensive storage medium (disk, tape, etc.) for long-term retention.

archive attribute An attribute of a file that shows whether the file has been backed up since the last change. Each time a file is opened, changed, or saved, the archive bit is turned on. Some types of backups will turn off this archive bit to indicate that a good backup of the file exists on tape.

ARP (address resolution protocol) A protocol in the TCP/IP suite used with the command-line utility of the same name to determine the MAC address that corresponds to a particular IP address.

ASCII (American Standard Code for Information Interchange) The industry-standard 8-bit characters used to define text characters, consisting of 96 upper- and lowercase letters, plus 32 non-printing control characters, each of which is numbered. These numbers were designed to achieve uniformity among different computer devices for printing and the exchange of simple text documents.

ASD (Automatic Skip Driver) A utility for preventing “bad” drivers from running the next time that you boot your computer. This utility examines startup log files and removes problematic drivers from the boot process.

aspect ratio The ratio of width to height of an object. Standard television has a 4:3 aspect ratio.

ASR (Automated System Recovery) A Windows XP tool designed to recover a badly corrupted Windows system; similar to ERD.

asynchronous Communication whereby the receiving devices must send an acknowledgment, or “ACK,” to the sending unit to verify a piece of data has been sent.

AT (advanced technology) The model name of the second-generation, 80286-based IBM computer. Many aspects of the AT, such as the BIOS, CMOS, and expansion bus, have become *de facto* standards in the PC industry. The physical organization of the components on the motherboard is called the AT form factor.

ATA (AT attachment) A type of hard drive and controller. ATA was designed to replace the earlier ST506 and ESDI drives without requiring replacement of the AT BIOS—hence, AT attachment. These drives are more popularly known as IDE drives. The ATA/33 standard has drive transfer speeds up to 33 MBps; the ATA/66 up to 66 MBps; the ATA/100 up to 100 MBps; and the ATA/133 up to 133 MBps. *See also* IDE and Ultra DMA.

ATAPI (ATA packet interface) A series of standards that enable mass storage devices other than hard drives to use the IDE/ATA controllers. Extremely popular with CD-ROM drives and removable media drives like the Iomega Zip drive. *See also* EIDE.

Athlon Name used for a popular series of CPUs manufactured by AMD.

ATTRIB.EXE A command used to view the specific properties of a file; can also be used to modify or remove file properties, such as Read-Only, System, or Archive.

ATX (AT eXtended) The popular motherboard form factor, which generally replaced the AT form factor.

ATX12V A series of improvements to the original ATX standard for power supplies, including extra power connections and an increase of the ATX P1 power connector size from 20 pins to 24 pins.

autodetection The process through which new disks are automatically recognized by the BIOS.

AUTORUN.INF A file included on some CD-ROMs that automatically launches a program or installation routine when the CD-ROM is inserted into a CD-ROM drive.

Award Software Major producer of BIOS software for motherboards.

back up To save important data in a secondary location as a safety against loss of the primary data.

backside bus The set of wires that connect the CPU to Level 2 cache. First appearing in the Pentium Pro, most modern CPUs have a special backside bus. Some buses, such as that in the later Celeron processors (300A and beyond), run at the full speed of the CPU, whereas others run at a fraction. Earlier Pentium

IIs, for example, had backside buses running at half the speed of the processor. *See also* frontside bus and EDB (external data bus).

Backup or Restore Wizard A utility contained within Windows that allows a user to create system backups and set system restore points.

bandwidth A piece of the spectrum occupied by some form of signal, such as television, voice, fax data, etc. Signals require a certain size and location of bandwidth in order to be transmitted. The higher the bandwidth, the faster the signal transmission, allowing for a more complex signal such as audio or video. Because bandwidth is a limited space, when one user is occupying it, others must wait their turn. Bandwidth is also the capacity of a network to transmit a given amount of data during a given period.

bank The total number of SIMMs or DIMMs that can be accessed simultaneously by the chipset. The “width” of the external data bus divided by the “width” of the SIMM or DIMM sticks.

baseband Digital signaling that has only one signal (a single signal) on the cable at a time. The signals can only be in one of three states at one time: one, zero, and idle.

baseline Static image of a system’s (or network’s) performance when all elements are known to be working properly.

basic disks A hard drive partitioned in the “classic” way with a master boot record (MBR) and partition table. *See also* dynamic disks.

baud One analog cycle on a telephone line. In the early days of telephone data transmission, the baud rate was often analogous to bits per second. Due to advanced modulation of baud cycles as well as data compression, this is no longer true.

beep codes A series of audible tones produced by a motherboard during the POST. These tones identify whether the POST has completed successfully or whether some piece of system hardware is not working properly. Consult the manual for your particular motherboard for a specific list of beep codes.

binary numbers A number system with a base of 2, unlike the number systems most of us use which have bases of 10 (decimal numbers), 12 (measurement in feet and inches), and 60 (time). Binary numbers are preferred for

computers for precision and economy. An electronic circuit that can detect the difference between two states (on–off, 0–1) is easier and more inexpensive to build than one that could detect the differences among ten states (0–9).

biometric device Hardware device used to support authentication, which works by scanning and remembering unique aspects of a user's various body parts (e.g., retina, iris, face, or fingerprint) using some form of sensing device such as a retinal scanner.

BIOS (basic input/output system) Classically, the software routines burned onto the system ROM of a PC. More commonly seen as any software that directly controls a particular piece of hardware. A set of programs encoded in Read-Only Memory (ROM) on computers. These programs handle startup operations and low-level control of hardware such as disk drives, the keyboard, and monitor.

bit A bit is a single binary digit, the smallest unit of information handled by a computer.

bit depth The number of colors a video card is capable of producing. Common bit depths are 16-bit and 32-bit, representing 65,536 colors and 16.7 million colors respectively.

Blu-ray Disc An optical disc format that stores 25 or 50 GB of data, designed to be the replacement media for DVD. Competes with HD DVD.

boot To initiate an automatic routine that clears the memory, loads the operating system, and prepares the computer for use. The term is derived from “pull yourself up by your bootstraps.” PCs must do that because RAM doesn't retain program instructions when power is turned off. A *cold boot* occurs when the PC is physically switched on. A *warm boot* loads a fresh OS without turning off the computer, lessening the strain on the electronic circuitry. To do a *warm boot*, press the CTRL-ALT-DELETE keys at the same time twice in rapid succession (the three-fingered salute).

boot sector The first sector on an PC hard drive or floppy disk, track 0. The boot-up software in ROM tells the computer to load whatever program is found there. If a system disk is read, the program in the boot record directs the computer to the root directory to load the operating system.

BOOT.INI A text file used during the boot process that provides a list of all OSs currently installed and available for NTLDR. Also tells where each OS is located on the system.

bootable disk A disk that contains a functional operating system; can also be a floppy disk or CD-ROM.

BOOTLOG.TXT A text file where information concerning the boot process is logged; useful when troubleshooting system boot errors and problems.

bootstrap loader A segment of code in a system's BIOS that scans for an operating system, looks specifically for a valid boot sector, and, when one is found, hands control over to the boot sector; then the bootstrap loader removes itself from memory.

bps (bits per second) Measurement of how fast data is moved from one place to another. A 56K modem can move 56,000 bits per second.

bridge A device that connects two networks and passes traffic between them based only on the node address, so that traffic between nodes on one network does not appear on the other network. For example, an Ethernet bridge only looks at the Ethernet address. Bridges filter and forward packets based on MAC addresses and operate at Level 2 (Data Link layer) of the OSI seven-layer model.

broadband A type of signaling that sends multiple signals (channels) over the cable at the same time. The best example of broadband signaling is cable television. The zero, one, and idle states (*see* baseband) exist on multiple channels on the same cable. Also, broadband refers to high-speed, always-on communication links such as cable modems and DSL.

broadcast A broadcast is a packet addressed to all machines. In TCP/IP, the general broadcast address is 255.255.255.255.

browser A program specifically designed to retrieve, interpret, and display Web pages.

BSoD (Blue Screen of Death) The infamous error screen that appears when Windows encounters an unrecoverable error.

BTX A motherboard form factor designed as an improvement over ATX.

buffer Electronic storage, usually DRAM, that holds data moving between two devices. Buffers are used in situations where one device may send or receive data faster or slower than the other device with which it is in communication.

buffer underrun The inability of a source device to provide a CD-burner with a constant stream of data while burning a CD-R or CD-RW.

bug A programming error that causes a program or a computer system to perform erratically, produce incorrect results, or crash. The term was coined when a real bug was found in one of the circuits of one of the first ENIAC computers.

burn The process of writing data to a writable CD or DVD.

bus A series of wires connecting two or more separate electronic devices, enabling those devices to communicate.

bus topology A configuration wherein all computers connect to the network via a central bus cable.

byte A unit of eight bits, the fundamental data unit of personal computers. Storing the equivalent of one character, the byte is also the basic unit of measurement for computer storage.

CAB files Short for cabinet files. These files are compressed and most commonly used during OS installation to store many smaller files, such as device drivers.

cable modem A network device that enables a PC to connect to the Internet using RG-6 coaxial cabling (i.e., the same coax used for cable television). Capable of download speeds up to 1.5 megabits per second.

cable tester Device that tests the continuity of cables. Some testers also test for electrical shorts, crossed wires, or other electrical characteristics.

cache (disk) A special area of RAM that stores the data most frequently accessed from the hard drive. Cache memory can optimize the use of your systems.

cache memory A special section of fast memory, usually built into the CPU, used by the onboard logic to store information most frequently accessed from RAM.

caching The act of holding data in cache memory for faster access and use.

card Generic term for anything that you can snap into an expansion slot.

card services The uppermost level of PCMCIA services. The card services level recognizes the function of a particular PC Card and provides the specialized drivers necessary to make the card work.

CardBus 32-bit PC Cards that can support up to eight devices on each card. Electrically incompatible with earlier PC Cards (3.3 V versus 5 V).

case The metal or plastic enclosure for the system unit.

CAT 3 Category 3 wire; a TIA/EIA standard for UTP wiring that can operate up to 20 megabits per second.

CAT 5 Category 5 wire; a TIA/EIA standard for UTP wiring that can operate up to 100 megabits per second.

CAT 5e Category 5e wire; a TIA/EIA standard for UTP wiring that can operate up to 1 gigabit per second.

CAT 6 Category 6 wire; a TIA/EIA standard for UTP wiring that can operate up to 10 gigabits per second.

catastrophic failure Occurs when a component or whole system will not boot; usually related to a manufacturing defect of a component. Could also be caused by overheating and physical damage to computer components.

CCFL (cold cathode fluorescent lamp) A light technology used in LCDs and flatbed scanners. CCFLs use relatively little power for the amount of light they provide.

CD quality CD-quality audio has a sample rate of 44.4 KHz and a bit rate of 128 bits.

CD-DA (CD-digital audio) A special format used for early CD-ROMs and all audio CDs; divides data into variable length tracks. A good format to use for audio tracks but terrible for data due to lack of error checking.

CD-I CD Interactive “green disk” format by Philips; designed to play compressed movies.

CD-R (compact disc recordable) A type of CD technology that accepts a single “burn” but cannot be erased after that one burn.

CD-ROM (compact disc/read-only memory) A read-only compact storage disk for audio or video data. Recordable devices, such as CD-Rs, are updated versions of the older CD-ROM players. CD-ROMs are read using *CD-ROM drives*.

CD-RW (compact disc rewritable) A type of CD technology that accepts multiple reads/writes like a hard drive.

Celeron A lower-cost CPU based on Intel’s Pentium CPUs.

Centronics connector A connector commonly used with printers.

chipset Electronic chips, specially designed to work together, that handle all of the low-level functions of a PC. In the original PC the chipset consisted of close to 30 different chips; today, chipsets usually consist of one, two, or three separate chips embedded into a motherboard.

CHS (cylinder/heads/sectors per track) The initials for the combination of the three critical geometries used to determine the size of a hard drive—cylinders, heads, and sectors per track.

clean installation An operating system installed on a fresh drive, following a reformat of that drive. A clean install is often the only way to correct a problem with a system when many of the crucial operating system files have become corrupted.

cleaning kit A set of tools used to clean a device or piece of media.

client A computer program that uses the services of another computer program. Software that extracts information from a server; your auto-dial phone is a client, and the phone company is its server. Also a machine that accesses shared resources on a server.

client/server A relationship in which client software obtains services from a server on behalf of a person.

client/server application An application that performs some or all of its processing on an application server rather than on the client. The client usually only receives the result of the processing.

client/server network A network that has dedicated server machines and client machines.

clock An electronic circuit that uses a quartz crystal to generate evenly spaced pulses at speeds of millions of cycles per second. These pulses are used to synchronize the flow of information through the computer's internal communication channels.

clock cycle A single charge to the clock wire of a CPU.

clock multiplying CPU A CPU that takes the incoming clock signal and multiplies it inside the CPU to let the internal circuitry of the CPU run faster.

clock speed The speed at which a CPU executes instructions, measured in MHz or GHz. In modern CPUs, the internal speed is generally a multiple of the external speed. *See also* clock multiplying CPU.

cluster The basic unit of storage on a floppy or hard disk. Two or more sectors are contained in a cluster. When Windows stores a file on disk, it writes those files into dozens or even hundreds of contiguous clusters. If there aren't enough contiguous open clusters available, the operating system finds the next open cluster and writes there, continuing this process until the entire file is saved. The FAT tracks how the files are distributed among the clusters on the disk.

CMD.EXE In Windows, the file that contains the command processor. Usually located in the C:\WINNT\system32 folder on a Windows PC.

CMOS (complementary metal-oxide semiconductor) Originally, the type of non-volatile RAM that held information about the most basic parts of your PC such as hard drives, floppies, and amount of DRAM. Today, actual CMOS chips have been replaced by Flash-type non-volatile RAM. The information is the same, however, and is still called CMOS—even though it is now almost always stored on Flash RAM.

CNR (Communications and Network Riser) A proprietary slot used on some motherboards to provide a sound inference-free connection for modems, sound cards, and NICs.

coaxial cable Cabling in which an internal conductor is surrounded by another, outer conductor, thus sharing the same axis.

code A set of symbols representing characters (e.g., ASCII code) or instructions in a computer program (a programmer writes *source* code, which must be translated into *executable* or *machine* code for the computer to use). Used colloquially as a verb, *to code* is to write computer code; and as a noun, “He writes clean/sloppy/bad code.”

codec (compressor/decompressor) Software that compresses or decompresses media streams.

collision The result of two nodes transmitting at the same time on a multiple access network such as Ethernet. Both packets may be lost, or partial packets may result.

collision domain A set of Ethernet segments that receive all traffic generated by any node within those segments. Repeaters, amplifiers, and hubs do not create separate collision domains, but bridges, routers, and switches do.

COM port(s) A system name that refers to the serial communications ports available on your computer. When used as a program extension, .COM indicates an executable program file limited to 64 KB.

command A request, typed from a terminal or embedded in a file, to perform an operation or to execute a particular program.

command processor The part of the operating system that accepts input from the user and displays any messages, such as confirmation and error messages.

command prompt A text prompt for entering commands.

command-line interface A user interface for an OS devoid of all graphical trappings; interfaces directly with the OS.

communications program A program that makes a computer act as a terminal to another computer. Communications programs usually provide for file transfer between microcomputers and mainframes.

CompactFlash (CF) One of the older but still popular flash media formats. Its interface uses a simplified PC Card bus, so it also supports I/O devices.

component failure Occurs when a system device fails due to manufacturing or some other type of defect.

compression The process of squeezing data to eliminate redundancies, allowing files to be stored or transmitted using less space.

conditioning charger A battery charger that contains intelligent circuitry that prevents portable computer batteries from being overcharged and damaged.

connectionless protocol A protocol that does not establish and verify a connection between the hosts before sending data—it just sends it and hopes for the best. This is faster than connection-oriented protocols. UDP is an example of a connectionless protocol.

connection-oriented protocol A protocol that establishes a connection between two hosts before transmitting data, and verifies receipt before closing the connection between the hosts. TCP is an example of a connection-oriented protocol.

connectors Small receptacles that are used to attach cables to a system. Common types of connectors include USB, PS/2, and DB-25.

control panel A collection of Windows applets, or small programs, that can be used to configure various pieces of hardware and software in a system.

controller card A card adapter that connects devices, like a disk drive, to the main computer bus/motherboard.

convergence A measure of how sharply a single pixel appears on a CRT; a monitor with poor convergence would produce images that are not sharply defined.

Copy backup A type of backup similar to Normal or Full, in that all selected files on a system are backed up. This type of backup *does not* change the archive bit of the files being backed up.

core Name used for the family of Intel CPUs that succeeded the Pentium 4.

counter Used to track data about a particular object when using the Performance console.

CPU (central processing unit) The “brain” of the computer. The microprocessor that handles the primary calculations for the computer. CPUs are known by names such as Pentium 4 and Athlon.

CPU fan The cooling unit that sits directly on and cools the CPU.

CPUID Information stored in a CPU that gives very detailed information about every aspect of the CPU including vendor, speed, and model. Many programs access and display this information.

CRC (cyclic redundancy check) A very accurate mathematical method that is used to check for errors in long streams of transmitted data. Before data is sent, the main computer uses the data to calculate a CRC value from the data's contents. If the receiver calculates a different CRC value from the received data, the data was corrupted during transmission and is resent. Ethernet packets have a CRC code.

C-RIMM (continuity RIMM) A passive device added to populate unused banks in a system that uses RAMBUS RIMMs.

crossover cable Special UTP cable used to connect hubs or to connect network cards without a hub. Crossover cables reverse the sending and receiving wire pairs from one end to the other.

crossover port Special port in a hub that crosses the sending and receiving wires, thus removing the need for a crossover cable to connect the hubs.

CRT (cathode ray tube) The tube of a monitor in which rays of electrons are beamed onto a phosphorescent screen to produce images. Also a shorthand way to describe a monitor that uses CRT rather than LCD technology.

CSMA/CD (carrier sense multiple access with collision detection) The access method Ethernet systems use in local area networking technologies enabling packets of data information to flow through the network ultimately to reach address locations.

cylinder A single track on all the platters in a hard drive. Imagine a hard drive as a series of metal cans, nested one inside another; a single can would represent a cylinder.

Cyrix Company that made CPUs in direct competition with Intel and AMD. Bought by Via Technologies in 2000.

daily backup Also called **daily copy backup**. A backup of all files that have been changed on that day without changing the archive bits of those files.

daisy-chaining A method of connecting together several devices along a bus and managing the signals for each device.

DAT (digital audio tape) Higher storage capacity tape recording system that uses digital recording methods. Used for digital audio and video as well as data backups.

data structure A term that is used interchangeably with the term “file system.” *See also* file system.

DB connectors D-shaped connectors used for a variety of connections in the PC and networking world. Can be male (with prongs) or female (with holes) and have a varying number of pins or sockets. Also called D-sub or D-subminiature connectors.

DB-15 connector A two- or three-row DB connector (female) used for 10Base5 networks, MIDI/joysticks, and analog video.

DB-25 connector DB connector (female), commonly referred to as a parallel port connector.

DC (direct current) A type of electricity in which the flow of electrons is in a complete circle in one direction.

DDR SDRAM (double data rate SDRAM) A type of DRAM that makes two processes for every clock cycle. *See also* DRAM.

DDR2 SDRAM A type of SDRAM that sends four bits of data in every clock cycle. *See also* DDR SDRAM (double data rate SDRAM).

debug To detect, trace, and eliminate errors in computer programs.

decoder A tool used to decode data that has been encoded; for instance, a DVD decoder breaks down the code used to encrypt the data on a piece of DVD Video media.

dedicated circuit Circuit that runs from a breaker box to specific outlets.

dedicated server A machine that is not used for any client functions, only server functions.

dedicated telephone line A telephone line on a circuit that is always open, or connected. Dedicated telephone lines usually are not assigned numbers.

default A software function or operation which occurs automatically unless the user specifies something else.

default gateway In a TCP/IP network, the nearest router to a particular host. This router's IP address is part of the necessary TCP/IP configuration for communicating with multiple networks using IP.

defragmentation (DEFRAG) A procedure in which all the files on a hard disk are rewritten on disk so that all parts of each file reside in contiguous clusters. The result is an improvement of up to 75 percent of the disk's speed during retrieval operations.

degauss The procedure used to break up the electromagnetic fields that can build up on the cathode ray tube of a monitor; involves running a current through a wire loop. Most monitors feature a manual degaussing tool.

desktop A user's primary interface to the Windows operating system.

desktop extenders A type of portable computer that offers some of the features of a full-fledged desktop computer, but with a much smaller footprint and lower weight.

desktop replacement A type of portable computer that offers the same performance of a full-fledged desktop computer; these systems are normally very heavy to carry and often cost much more than the desktop systems they replace.

DETLOG.TXT A log file created during the initial operating system installation that tracks the detection, query, and installation of all devices.

device driver A program used by the operating system to control communications between the computer and peripherals.

Device Manager A utility that allows techs to examine and configure all the hardware and drivers in a Windows PC.

DHCP (dynamic host configuration protocol) A protocol that enables a DHCP server to set TCP/IP settings automatically for a DHCP client.

differential backup Similar to an incremental backup. Backs up the files that have been changed since the last backup. This type of backup does not change the state of the archive bit.

digitally signed driver All drivers designed specifically for Windows 2000 and Windows XP are digitally signed, meaning they are tested to work stably with these operating systems.

DIMM (dual inline memory module) A 32- or 64-bit type of DRAM packaging, similar to SIMMs, with the distinction that each side of each tab inserted into the system performs a separate function. DIMMs come in a variety of sizes, with 184- and 240-pin being the most common on desktop computers.

DIPP (dual inline pin package) An early type of RAM package that featured two rows of exposed connecting pins; very fragile and difficult to install. DIPPs were replaced first with SIPPs and later with SIMMs and DIMMs.

DIR command A command used in the command-line interface that displays the entire contents of the current working directory.

directory Another name for a folder.

DirectX A set of APIs enabling programs to control multimedia, such as sound, video, and graphics. Used in Windows Vista to draw the Aero desktop.

disk cache A piece of DRAM, often integrated into a disk drive, that is used to store frequently accessed data in order to speed up access times.

Disk Cleanup A series of utilities, built into Windows, that can help a user clean up their disks by removing temporary Internet files, deleting unused program files, and more.

disk drive controller The circuitry that controls the physical operations of the floppy disks and/or hard disks connected to a computer.

Disk Management A snap-in available with the Microsoft Management Console that allows a user to configure the various disks installed in a system; available from the Administrative Tools area of the Control Panel.

disk mirroring Process by which data is written simultaneously to two or more disk drives. Read and write speed is decreased but redundancy in case of catastrophe is increased.

disk striping Process by which data is spread among multiple (at least two) drives. It increases speed for both reads and writes of data. Considered RAID level 0, because it does *not* provide fault tolerance.

disk striping with parity A method for providing fault tolerance by writing data across multiple drives and then including an additional drive, called a *parity drive*, that stores information to rebuild the data contained on the other drives. Requires at least three physical disks: two for the data and a third for the parity drive. This provides data redundancy at RAID levels 3–5 with different options.

disk thrashing A term used to describe a hard drive that is constantly being accessed due to the lack of available system memory. When system memory runs low, a Windows system utilizes hard disk space as “virtual” memory, thus causing an unusual amount of hard drive access.

distro Shortened form of “distribution,” most commonly used to describe the many different delivered packages for Linux operating systems and applications.

dithering A technique for smoothing out digitized images; using alternating colors in a pattern to produce perceived color detail.

DMA (direct memory access) A technique that some PC hardware devices use to transfer data to and from the memory without using the CPU.

DNS (domain name system) A TCP/IP name resolution system that translates a host name into an IP address.

DNS domain A specific branch of the DNS name space. First-level DNS domains include .COM, .GOV, and .EDU.

documentation A collection of organized documents or the information recorded in documents. In the computer world, instructional material specifying the inputs, operations, and outputs of a computer program or system; for example, a manual and Getting Started card.

Dolby Digital A technology for sound reductions and channeling methods.

domain Term used to describe groupings of users, computers, or networks. In Microsoft networking, a domain is a group of computers and users that share a common account database, called a SAM (security accounts manager),

and a common security policy. On the Internet, a domain is a group of computers that share a common element in their hierarchical name. Other types of domains exist—e.g., collision domain.

domain controller A Microsoft Windows NT machine that stores the user and server account information for its domain in a database called a SAM (security accounts manager) database.

DOS (Disk Operating System) The first popular operating system available for PCs. It was a text-based, single-tasking operating system that was not completely replaced until the introduction of Windows 95.

DOS prompt A symbol, usually a letter representing the disk drive followed by the greater-than sign (>), which tells you that the operating system is ready to receive a command. Windows systems use the term *command prompt* rather than DOS prompt.

DOSKEY A DOS utility that enables you to type more than one command on a line, store and retrieve previously used command-line commands, create stored macros, and customize all commands. DOSKEY is still supported in Windows XP.

dot pitch A value relating to CRTs, showing the diagonal distance between phosphors measured in millimeters.

dot-matrix printer A printer that creates each character from an array of dots. Pins striking a ribbon against the paper, one pin for each dot position, form the dots. The printer may be a serial printer (printing one character at a time) or a line printer.

double word A unit of 32 binary digits; four bytes.

double-side high density A type of floppy disk that is capable of holding 1.2 MB on a 5.25-inch disk and 1.44 MB on a 3.5-inch disk. This format can be read in all modern floppy disk drives.

double-sided RAM A RAM stick with RAM chips soldered to both sides of the stick. May only be used with motherboards designed to accept double-sided RAM. Very common.

downstream A term used to define the part of a USB connection that plugs into a USB device.

DPI (dots per inch) A measure of printer resolution that counts the dots the device can produce per linear (horizontal) inch.

DRAM (dynamic random access memory or dynamic RAM) The memory used to store data in most personal computers. DRAM stores each bit in a “cell” composed of a transistor and a capacitor. Because the capacitor in a DRAM cell can only hold a charge for a few milliseconds, DRAM must be continually refreshed, or rewritten, to retain its data.

DS3D (DirectSound3D) Introduced with DirectX 3.0, DS3D is a command set used to create positional audio, or sounds that appear to come from in front, in back, or to the side of a user. *See also* DirectX.

DSL (digital subscriber line) A high-speed Internet connection technology that uses a regular telephone line for connectivity. DSL comes in several varieties, including Asynchronous (ADSL) and Synchronous (SDSL), and many speeds. Typical home-user DSL connections are ADSL with a download speed of up to 1.5 Mbps and an upload speed of 384 Kbps.

DSP (digital signal processor) A specialized microprocessor-like device that processes digital signals at the expense of other abilities, much as the FPU is optimized for math functions. DSPs are used in such specialized hardware as high-speed modems, multimedia sound cards, MIDI equipment, and real-time video capture and compression.

DTS (Digital Theatre Systems) A technology for sound reductions and channeling methods, similar to Dolby Digital.

dual boot Refers to a computer with two operating systems installed, enabling a user to choose which operating system to load on boot. Can also refer to kicking a device a second time just in case the first time didn't work.

dual-channel memory A form of DDR and DDR2 memory access used by many motherboards that requires two identical sticks of DDR or DDR2 RAM.

duplexing Also called **disk duplexing** or **drive duplexing**. Similar to mirroring in that data is written to and read from two physical drives, for fault tolerance. Separate controllers are used for each drive, both for additional fault tolerance and additional speed. Considered RAID level 1.

Duron A lower-cost version of AMD's Athlon series of CPUs.

DVD (digital versatile disc) An optical media format that provides for 4–17 GB of video or data storage.

DVD Multi A description given to DVD drives that are capable of reading all six DVD formats.

DVD+RW A type of rewritable DVD media.

DVD-RAM A type of rewritable DVD media that uses a cartridge.

DVD-ROM The DVD equivalent of the standard CD-ROM.

DVD-RW A type of rewritable DVD media.

DVD-Video A DVD format used exclusively to store digital video; capable of storing over 2 hours of high-quality video on a single DVD.

DVI (digital video interface) A special video connector designed for digital-to-digital connections; most commonly seen on PC video cards and LCD monitors. Some versions also support analog signals with a special adapter.

dynamic disks A special feature of Windows 2000 and Windows XP that allows a user to span a single volume across two or more drives. Dynamic disks do not have partitions; they have volumes. Dynamic disks can be striped, mirrored, and striped or mirrored with parity.

EAX 3-D sound technology developed by Creative Labs, but now supported by most sound cards.

ECC (error-correcting code) Special software, embedded on hard drives, that constantly scans the drives for bad sectors.

ECC DRAM (error-correcting code DRAM) A type of RAM that uses special chips to detect and fix memory errors. This type of RAM is commonly used in high-end servers where data integrity is crucial.

EDB (external data bus) The primary data highway of all computers. Everything in your computer is tied either directly or indirectly to the external data bus. *See also* frontside bus and backside bus.

EDO DRAM (enhanced data out DRAM) An improvement on FPM DRAM in that more data can be read before the RAM must be refreshed.

EEPROM (electrically erasable programmable read-only memory) A type of ROM chip that can be erased and reprogrammed electrically. EEPROMs were the most common storage device for BIOS before the advent of Flash ROM.

EFS (encrypting file system) The encryption tool found in NTFS 5.

EIA/TIA *See* TIA/EIA.

EIDE (enhanced IDE) A marketing concept of hard drive-maker Western Digital, encompassing four improvements for IDE drives. These improvements included drives larger than 528 MB, four devices, increase in drive throughput, and non-hard drive devices. *See also* ATAPI, PIO.

EISA (enhanced ISA) An improved expansion bus, based on the ISA bus, with a top speed of 8.33 MHz, a 32-bit data path, and a high degree of self-configuration. Backward compatible with legacy ISA cards.

e-mail, email (electronic mail) Messages, usually text, sent from one person to another via computer. E-mail can also be sent automatically to a group of addresses (mailing list).

EMI (electro-magnetic interference) EMI is electrical interference from one device to another, resulting in poor performance of the device being interfered with. An example is having static on your TV while running a blow dryer, or placing two monitors too close together and getting a “shaky” screen.

EPROM (erasable programmable read-only memory) A special form of ROM that can be erased by high-intensity ultraviolet light and then rewritten (reprogrammed).

ERD (emergency repair disk) This disk saves critical boot files and partition information and is the main tool for fixing boot problems in Windows 2000.

ESD (electrostatic discharge) The movement of electrons from one body to another. ESD is a real menace to PCs, as it can cause permanent damage to semi-conductors.

Ethernet Name coined by Xerox for the first standard of network cabling and protocols. Ethernet is based on a bus topology.

EULA (end user license agreement) An agreement that accompanies a piece of software, which the user must agree to in order to use the software. This

agreement outlines the terms of use for software and also lists any actions on the part of the user that violate the agreement.

Event Viewer A utility made available as an MMC snap-in that allows a user to monitor various system events, including network bandwidth usage and CPU utilization.

EXPAND A CAB file utility program included with Windows 2000. Usage of EXPAND is similar to usage of EXTRACT. *See also* EXTRACT.

expansion bus crystal The crystal that controls the speed of the expansion bus.

expansion bus Set of wires going to the CPU, governed by the expansion bus crystal, directly connected to expansion slots of varying types (PCI, AGP, PCIE, etc.). Depending on the type of slots, the expansion bus runs at a percentage of the main system speed (8.33–133 MHz).

expansion slots Connectors on a motherboard that enable a user to add optional components to a system. *See also* AGP (accelerated graphics port) and PCI (peripheral components interconnect).

ExpressCard A serial PC Card designed to replace CardBus PC Cards. ExpressCards connect to either a Hi-Speed USB (480 Mbps) or PCI Express (2.5 Gbps) bus.

extended partition A type of hard disk partition. Extended partitions are not bootable and you may only have one extended partition per disk. The purpose of an extended partition is to divide a large disk into smaller partitions, each with a separate drive letter.

extension The three or four letters that follow a filename; an extension identifies the type of file. Common file extensions are .ZIP, .EXE, and .DOC.

EXTRACT A program native to Windows 9x/Me that can be used to extract data from compressed CAB files. *See also* EXPAND.

Fast Ethernet Any of several flavors of Ethernet that operate at 100 megabits/second.

FAT (file allocation table) A hidden table of every cluster on a hard disk. The FAT records how files are stored in distinct clusters. The address of the first cluster of the file is stored in the directory file. In the FAT entry for the first cluster is

the address of the second cluster used to store that file. In the entry for the second cluster for that file is the address for the third cluster, and so on until the final cluster, which gets a special “end of file” code. This table is the only way DOS knows where to access files. There are two FATs, mirror images of each other, in case one is destroyed or damaged.

FAT16 File allocation table that uses 16 bits for addressing clusters. Commonly used with DOS and Windows 95 systems.

FAT32 File allocation table that uses 32 bits for addressing clusters. Commonly used with Windows 98 and Windows Me systems. Some Windows 2000 Professional and Windows XP systems also use FAT32, although most use the more robust NTFS.

FDISK A disk partitioning utility included with Windows.

fiber optics A high-speed channel for transmitting data, made of high-purity glass sealed within an opaque tube. Much faster than conventional copper wire such as coaxial cable.

file A collection of any form of data that is stored beyond the time of execution of a single job. A file may contain program instructions or data, which may be numerical, textual, or graphical information.

file allocation unit Another term for cluster. *See also* cluster.

file format The way information is encoded in a file. Two primary types are binary (pictures) and ASCII (text), but within those there are many formats, such as BMP and GIF for pictures. Commonly represented by a suffix at the end of the filename—for example, .txt for a text file or .exe for an executable.

file fragmentation The allocation of a file in a non-contiguous sector on a disk. Fragmentation occurs because of multiple deletions and write operations.

file server A computer designated to store software, courseware, administrative tools, and other data on a local- or wide-area network. It “serves” this information to other computers via the network when users enter their personal access codes.

file system A scheme that directs how an OS stores and retrieves data on and off a drive; FAT32 and NTFS are both file systems.

filename A name assigned to a file when the file is first written on a disk. Every file on a disk within the same folder must have a unique name. Filenames can contain any character (including spaces), except the following: \ / : * ? " < > |

firewall A device that restricts traffic between a local network and the Internet.

FireWire (IEEE 1394) An IEEE 1394 interconnection standard to send wide-band signals over a serialized, physically thin connector system. This serial bus developed by Apple and Texas Instruments enables connection of 60 devices at speeds up to 800 megabits per second.

firmware Embedded programs or code that is stored on a ROM chip. Firmware is generally OS-independent, thus allowing devices to operate in a wide variety of circumstances without direct OS support. The system BIOS is firmware.

Flash ROM A type of ROM technology that can be electrically reprogrammed while still in the PC. Flash is the overwhelmingly most common storage medium of BIOS in PCs today, as it can be upgraded without even having to open the computer on most systems.

FlexATX A motherboard form factor. Motherboards built in accordance with the FlexATX form factor are very small, much smaller than microATX motherboards.

flexing Condition that can result when components are installed on a motherboard after it has been installed into a computer case. Excessive flexing can cause damage to the motherboard itself.

floppy disk A type of removable storage media that can hold between 720 KB and 1.44 MB of data.

floppy drive A piece of system hardware that uses removable 3.5-inch disks as storage media.

flux reversal The point at which a read/write head detects a change in magnetic polarity.

FM synthesis A method for producing sound that used electronic emulation of various instruments to more or less produce music and other sound effects.

form factor A standard for the physical organization of motherboard components and motherboard size. The most common form factors are ATX, BTX, and NLX.

formatting The process of magnetically mapping a disk to provide a structure for storing data; can be done to any type of disk, including a floppy disk, hard disk, or other type of removable disk.

FPM (fast page mode) DRAM that uses a “paging” function to increase access speed and to lower production costs. Virtually all DRAMs are FPM DRAM. The name FPM is also used to describe older style, non-EDO DRAM.

FPT (forced perfect termination) A method for terminating SCSI devices that uses diodes instead of resistors.

FPU (floating-point unit) A formal term for the math coprocessor (also called a *numeric processor*) circuitry inside a CPU. A math coprocessor calculates using floating point math (which allows for decimals). Before the Intel 80486, FPUs were separate chips from the CPU.

fragmentation Occurs when files and directories get jumbled on a fixed disk and are no longer contiguous. Fragmentation can significantly slow down hard drive access times and can be repaired by using the DEFRAG utility that is included with each version of Windows. *See also* defragmentation (DEFRAG), file fragmentation.

freeware Software that is distributed for free, with no license fee.

frontside bus Name for the wires that connect the CPU to the main system RAM. Generally running at speeds of 66–133 MHz. Distinct from the expansion bus and the backside bus, though it shares wires with the former.

FRU (field replaceable unit) Any part of a PC that is considered to be replaceable “in the field” (i.e., a customer location). There is no official list of FRUs—it is usually a matter of policy by the repair center.

FTP (file transfer protocol) A set of rules that enables two computers to talk to one another as a file transfer is carried out. This is the protocol used when you transfer a file from one computer to another across the Internet.

fuel cells A type of power source that uses chemical reactions to produce electricity. Lightweight, compact, and stable, these devices are expected to replace batteries as the primary power source for portable PCs.

full-duplex Describes any device that can send and receive data simultaneously.

function key A keyboard key that gives an instruction to a computer, as opposed to keys that produce letters, numbers, marks of punctuation, etc.

fuser assembly A mechanism, found in laser printers, that uses two rollers to fuse toner to paper during the print process.

gateway The technical meaning is a hardware or software setup that translates between two dissimilar protocols. For example, Prodigy has a gateway that translates between its internal, proprietary e-mail format and Internet e-mail format. Another, less technical meaning of gateway is any mechanism for providing access to another system (e.g., AOL might be called a gateway to the Internet). *See also* default gateway.

general-purpose registers The registers that handle the most common CPU calculations. *See also* register.

giga- The prefix for the quantity 1,073,741,824 or for 1 billion. One gigabyte would be 1,073,741,824 bytes, except for with hard drive labeling, where it means 1 billion bytes. One gigahertz is 1 billion hertz.

gigabyte 1024 megabytes.

green PC A computer system designed to operate in an energy-efficient manner.

guest Very limited built-in account type for Windows.

GUI (graphical user interface) An interface is the method by which a computer and a user interact. Early interfaces were text-based; that is, the user “talked” to the computer by typing and the computer responded with text on a CRT. A GUI (pronounced “gooey”), on the other hand, enables the user to interact with the computer graphically, by manipulating icons that represent programs or documents with a mouse or other pointing device.

HAL (hardware abstraction layer) A part of the Windows OS that separates system-specific device drivers from the rest of the NT system.

half-duplex Any device that at any given moment can either send or receive data, but not both. Most Ethernet transmissions are half-duplex.

handshaking A procedure performed by modems, terminals, and computers to verify that communication has been correctly established.

hang When a computer freezes so that it does not respond to keyboard commands, it is said to “hang” or to have “hung.”

hang time The number of seconds a too-often-hung computer is airborne after you have thrown it out a second-story window.

hard drive A data-recording system using solid disks of magnetic material turning at high speeds to store and retrieve programs and data in a computer.

hardware Physical computer equipment such as electrical, electronic, magnetic, and mechanical devices. Anything in the computer world that you can hold in your hand. A floppy drive is hardware; Microsoft Word is not.

hardware profile A list of devices that Windows automatically enables or disables in the Device Manager, depending on what devices the system detects.

hardware protocol A hardware protocol defines many aspects of a network, from the packet type to the cabling and connectors used.

Hayes command set A standardized set of instructions used to control modems.

HCL (Hardware Compatibility List) Now part of Windows Marketplace, a list that is maintained by Microsoft that includes all the hardware that is supported by an operating system. This list is helpful to use when upgrading a system; with a quick glance, you can make sure that support is available for all the devices in a system before you begin the upgrade.

HD (Hi-Definition) A multimedia transmission standard that defines high-resolution images and 5.1 sound.

HD DVD An optical disc format that stores 15 or 30 GB of data, designed to be the replacement media for DVD. Competes with Blu-ray Disc.

HDMI (hi-definition multimedia interface) A single multimedia connection that includes both high-definition video and audio. HDMI also contains copy protection features.

hex (hexadecimal) A base-16 numbering system using 10 digits (0 through 9) and six letters (A through F). Used in the computer world as a shorthand way to write binary numbers, by substituting one hex digit for a four-digit binary number (e.g., hex 9 = binary 1001).

hibernation A power management setting in which all data from RAM is written to the hard drive before going to sleep. Upon waking up, all information is retrieved from the hard drive and returned to RAM.

hidden attribute A file attribute that, when used, does not allow a file to be seen when using the DIR command.

hierarchical directory tree The method by which Windows organizes files into a series of folders, called directories, under the root directory. *See also* root directory.

high-level formatting A type of format that sets up a file system on a drive.

high-voltage anode A component in a CRT monitor. The high-voltage anode has very high voltages of electricity flowing through it.

host A single device (usually a computer) on a TCP/IP network that has an IP address—any device that can be the source or destination of a data packet. Also, in the mainframe world, a computer that is made available for use by multiple people simultaneously.

host adapter An expansion card that serves as a host to a particular device; for instance, you can install a SCSI host adapter into a system to allow for SCSI functionality even if SCSI hardware was not originally included with the machine.

host ID The portion of an IP address that defines a specific machine.

hot-swappable A term used for any type of hardware that may be attached to or removed from a PC without interrupting the PC's normal processing.

HotSync (synchronization) A term used to describe the synchronizing of files between a PDA and a desktop computer. HotSync is the name of the synchronization program that is used by PalmOS-based PDAs.

HRR (horizontal refresh rate) The amount of time it takes for a CRT to draw one horizontal line of pixels on a display.

HTML (Hypertext Markup Language) An ASCII-based, script-like language for creating hypertext documents like those on the World Wide Web.

HTTP (Hypertext Transfer Protocol) Extremely fast protocol used for network file transfers in the WWW environment.

HTTPS (HTTP over Secure Sockets Layer) A secure form of HTTP, used commonly for Internet business transactions or any time when a secure connection is required. *See also* HTTP.

hub An electronic device that sits at the center of a star topology network, providing a common point for the connection of network devices. Hubs repeat all information out to all ports and have been replaced by switches, although the term is still commonly used.

HVD (high-voltage differential) A rare type of SCSI device that uses two wires for each bit of information: one wire for data and one for the inverse of this data. The inverse signal takes the place of the ground wire in the single-ended cable. By taking the difference of the two signals, the device can reject the common-mode noise in the data stream.

hyperthreading A CPU feature that enables a single pipeline to run more than one thread at once.

I/O (input/output) A general term for reading and writing data to a computer. The term “input” includes data from a keyboard, pointing device (such as a mouse), or loading a file from a disk. “Output” includes writing information to a disk, viewing it on a CRT, or printing it to a printer.

I/O addressing The process of using the address bus to talk to system devices.

ICF (Internet Connection Firewall) A software firewall built into Windows XP that protects your system from unauthorized access from the Internet.

ICH (I/O controller hub) The official name for the Southbridge chip found in Intel’s chipsets.

icon A small image or graphic, most commonly found on a system’s desktop, that launches a program when selected.

ICS (Internet Connection Sharing) A method for allowing a single network connection to be shared among several machines. ICS was first introduced with Windows 98.

IDE (intelligent drive electronics) Also known as **integrated drive electronics**. A PC specification for small- to medium-sized hard drives in which the controlling electronics for the drive are part of the drive itself, speeding up transfer rates and leaving only a simple adapter (or “paddle”). IDE only supported two drives per system of no more than 504 megabytes each, and has been completely supplanted by Enhanced IDE. EIDE supports four drives of over 8 gigabytes each and more than doubles the transfer rate. The more common name for PATA drives. *See also* PATA.

IEC-320 Type of connector used to connect the cable supplying AC power from a wall outlet into the power supply.

IEEE (Institute of Electronic and Electrical Engineers) IEEE is the leading standards-setting group in the United States.

IEEE 1284 The IEEE standard governing parallel communication.

IEEE 1394 The IEEE standard governing FireWire communication. *See also* FireWire (IEEE 1394).

IFCONFIG A command-line utility for Linux servers and workstations that displays the current TCP/IP configuration of the machine, similar to Windows’ IPCONFIG.

image file A bit-by-bit image of the data to be burned on the CD or DVD—from one file to an entire disc—stored as a single file on a hard drive. Image files are particularly handy when copying from CD to CD or DVD to DVD.

image installation An operating system installation that uses a complete image of a hard drive as an installation media. This is a helpful technique to use when installing an operation system on a large number of identical PCs.

impact printer A type of printer that uses pins and inked ribbons to print text or images on a piece of paper.

impedance The amount of resistance to an electrical signal on a wire. It is used as a relative measure of the amount of data a cable can handle.

incremental backup A type of backup that backs up all files that have their archive bits turned on, meaning that they have been changed since the last backup. This type of backup turns the archive bits off after the files have been backed up.

INF file A Windows driver file.

inkjet printer A type of printer that uses liquid ink, sprayed through a series of tiny jets, to print text or images on a piece of paper.

instruction set All of the machine-language commands that a particular CPU is designed to understand.

interlaced TV/video systems in which the electron beam writes every other line; then retraces itself to make a second pass to complete the final framed image. Originally, this reduced magnetic line paring, but took twice as long to paint, which added some flicker in graphic images.

InterNIC Organization run by Network Solutions, Inc. (NSI) and AT&T that provides several services to Internet users, the most prominent being the registration of domain names and assignment of IP addresses.

interrupt A suspension of a process, such as the execution of a computer program, caused by an event external to the computer and performed in such a way that the process can be resumed. Events of this kind include sensors monitoring laboratory equipment or a user pressing an interrupt key.

interrupt 13 (INT13) extensions An improved type of BIOS that accepts EIDE drives up to 137 GB.

intranet A private network inside a company or organization that uses the same kinds of software that you find on the public Internet, but that is only for internal use.

inverter A device used to convert DC current into AC. Commonly used with CCFLs in laptops and flatbed scanners.

IP (Internet protocol) The Internet standard protocol that provides a common layer over dissimilar networks used to move packets among host computers and through gateways if necessary. Part of the TCP/IP protocol suite.

IP address Also called **Internet address**. The numeric address of a computer connected to the Internet. The IP address is made up of octets of 8-bit binary

numbers that are translated into their shorthand numeric values. The IP address can be broken down into a network ID and a host ID.

IPCONFIG A command-line utility for Windows NT servers and workstations that displays the current TCP/IP configuration of the machine, similar to WINIPCFG and IFCONFIG.

IPX/SPX (Internetwork Packet Exchange/Sequence Packet Exchange) Protocol suite developed by Novell, primarily for supporting Novell NetWare-based networks.

IRC (Internet Relay Chat) The Internet Relay Chat, or just Chat, is an online group discussion.

IRQ (interrupt request) A signal from a hardware device, such as a modem or a mouse, indicating that it needs the CPU's attention. In PCs, IRQs are sent along specific IRQ channels associated with a particular device. IRQ conflicts were a common problem in the past when adding [HYPERLINK "http://www.webopaedia.com/TERM/I/expansion_board.html"](http://www.webopaedia.com/TERM/I/expansion_board.html) expansion boards, but the Plug-and-Play specification has removed this headache in most cases.

ISA (industry standard architecture) The Industry Standard Architecture design was found in the original IBM PC for the slots on the motherboard that allowed additional hardware to be connected to the computer's motherboard. An 8-bit, 8.33-MHz expansion bus was designed by IBM for its AT computer and released to the public domain. An improved 16-bit bus was also released to the public domain. Replaced by PCI in the mid-1990s.

ISDN (integrated services digital network) The CCITT (Comité Consultatif Internationale de Télégraphie et Téléphonie) standard that defines a digital method for communications to replace the current analog telephone system. ISDN is superior to POTS (*see* POTS) telephone lines because it supports up to 128 Kbps transfer rate for sending information from computer to computer. It also allows data and voice to share a common phone line. DSL reduced demand for ISDN substantially.

ISO 9660 CD format to support PC file systems on CD media. Supplanted by the Joliet format.

ISP (Internet service provider) A company that provides access to the Internet, usually for money.

jack (physical connection) The part of a connector into which a plug is inserted. Jacks are also referred to as ports.

Joliet An extension of the ISO 9660 format. The most popular CD format to support PC file systems on CD media.

joystick A peripheral often used while playing computer games; originally intended as a multipurpose input device.

jumper A pair of small pins that can be shorted with a “shunt” to configure many different aspects of PCs. Usually used in configurations that are rarely changed, such as master/slave settings on IDE drives.

K Most commonly used as the suffix for the binary quantity 1024 (2^{10}). Just to add some extra confusion to the IT industry, K is often spoken as “kilo,” the metric value for 1000. 10 KB, for example, spoken as “10 kilobytes,” actually means 10,240 bytes rather than 10,000 bytes.

Kbps (kilobits per second) Data transfer rate.

kernel The core portion of the program that resides in memory and performs the most essential operating system tasks.

keyboard An input device. There are two common types of keyboards—those that use a mini-DIN (PS/2) connection and those that use a USB connection.

KHz (kilohertz) A unit of measure that equals a frequency of one thousand cycles per second.

Knowledge Base A large collection of documents and FAQs that is maintained by Microsoft. Found on Microsoft’s Web site, the Knowledge Base is an excellent place to search for assistance on most operating system problems.

LAN (local area network) A group of PCs connected together via cabling, radio, or infrared that use this connectivity to share resources such as printers and mass storage.

laser A single-wavelength, in-phase light source that is sometimes strapped to the head of sharks by bad guys. Note to henchmen: lasers should never be used with sea bass, no matter how ill-tempered they might be.

laser printer An electro-photographic printer in which a laser is used as the light source.

Last Known Good Configuration An option on the Advanced Startup Options menu that allows your system to revert to a previous configuration in order to troubleshoot and repair any major system problems.

latency The amount of delay before a device may respond to a request; most commonly used in reference to RAM.

layer In the communications field, a grouping of related tasks involving the transfer of information. Also, a level of the OSI reference model used for networking computers. In graphics work, images can be created in layers, which can be manipulated separately and then flattened into a single image.

layer 2 switch Also called a **bridge**. Filters and forwards data packets based on the MAC addresses of the sending and receiving machines.

layer 3 switch Also called a **router**. Filters and forwards data packets based on the network addresses of the sending and receiving machines.

LBA (logical block addressing) A translation (algorithm) of IDE drives promoted by Western Digital as a standardized method for breaking the 504-MB limit in IDE drives. Subsequently universally adopted by the PC industry and is standard on all EIDE drives.

LCD (liquid crystal display) A display technology that relies on polarized light passing through a liquid medium rather than on electron beams striking a phosphorescent surface.

LED (light-emitting diode) Solid-state device that vibrates at luminous frequencies when current is applied.

legacy device Any device that is not Plug-and-Play compatible.

level 1 (L1) cache The first RAM cache accessed by the CPU, which stores only the absolute most-accessed programming and data used by currently running threads. This is always the smallest and fastest cache on the CPU.

level 2 (L2) cache The second RAM cache accessed by the CPU, which is much larger and often slower than the L1 cache; accessed only if the requested program/data is not in the L1 cache.

level 3 (L3) cache The third RAM cache accessed by the CPU, which is much larger and slower than the L1 and L2 cache; accessed only if the requested program/data is not in the L2 cache. Seen only on high-end CPUs.

Li-Ion (lithium ion) A type of battery commonly used in portable PCs. Li-Ion batteries don't suffer from the memory effects of NiCd batteries and provide much more power for a great length of time.

limited account A type of user account in Windows XP that has limited access to a system. Accounts of this type cannot alter system files, cannot install new programs, and cannot edit settings using the Control Panel.

Linux Open source UNIX-clone operating system.

local bus A high-speed data path that directly links the computer's CPU with one or more slots on the expansion bus. This direct link means signals from an adapter do not have to travel through the computer expansion bus, which is significantly slower.

localhost An alias for the loopback address of 127.0.0.1, referring to the current machine.

logical address An address that describes both a specific network and a specific machine on that network.

logical drives Sections of a hard drive that are formatted and assigned a drive letter, each of which is presented to the user as if it were a separate drive.

loopback address A reserved IP address for internal testing; 127.0.0.1.

low-level format Defining the physical location of magnetic tracks and sectors on a disk.

LPT port Commonly referred to as a printer port; usually associated with a local parallel port.

lumens A unit of measure for the amount of brightness on a projector or other light source.

luminescence The part of the video signal that controls the luminance/brightness of the picture. Also known as the "Y" portion of the component signal.

LUNs (logical unit numbers) A specialized SCSI configuration that allows for multiple devices to share a single SCSI ID. This type of arrangement is found most commonly in high-end servers that have large hard disk arrays.

LVD (low voltage differential) A type of differential SCSI. LVD SCSI requires less power than HVD and is compatible with existing SE SCSI controllers and devices. LVD devices can sense the type of SCSI and then work accordingly. If you plug an LVD device into an SE chain, it will act as an SE device. If you plug an LVD device into LVD, it will run as LVD. LVD SCSI chains can be up to 12 meters in length.

Mac Also **Macintosh**. Apple Computers' flagship operating system, currently up to OS X and running on Intel-based hardware.

MAC (Media Access Control) address Unique 48-bit address assigned to each network card. IEEE assigns blocks of possible addresses to various NIC manufacturers to help ensure that the address is always unique. The Data Link layer of the OSI model uses MAC addresses for locating machines.

machine language The binary instruction code that is understood by the CPU.

mass storage Hard drives, CD-ROMs, removable media drives, etc.

math coprocessor Also called **math unit** or **floating-point unit (FPU)**. A secondary microprocessor whose function is the handling of floating-point arithmetic. Although originally a physically separate chip, math coprocessors are now built into today's CPUs.

MB (megabyte) 1,048,576 bytes.

MBR (master boot record) A tiny bit of code that takes control of the boot process from the system BIOS.

MCA (Micro Channel architecture) Expansion bus architecture developed by IBM as the (unsuccessful) successor to ISA. MCA had a full 32-bit design as well as being self-configuring.

MCC (memory controller chip) The chip that handles memory requests from the CPU. Although once a special chip, it has been integrated into the chipset on all PCs today.

mega- A prefix that usually stands for the binary quantity 1,048,576 (2^{20}). One megabyte is 1,048,576 bytes. One megahertz, however, is a million hertz. Sometimes shortened to **meg**, as in “a 286 has an address space of 16 megs.”

memory A device or medium for temporary storage of programs and data during program execution. The term is synonymous with storage, although it is most frequently used for referring to the internal storage of a computer that can be directly addressed by operating instructions. A computer's temporary storage capacity is measured in kilobytes (KB) or megabytes (MB) of RAM (random-access memory). Long-term data storage on disks is also measured in kilobytes, megabytes, gigabytes, and terabytes.

Memory Stick Sony's flash memory card format; rarely seen outside of Sony devices.

MFT (master file table) An enhanced file allocation table used by NTFS. *See also* FAT (file allocation table).

MHz (megahertz) A unit of measure that equals a frequency of one million cycles per second.

micro DIMM A type of memory used in portable PCs because of its small size.

microATX A variation of the ATX form factor. MicroATX motherboards are generally smaller than their ATX counterparts, but retain all the same functionality.

microcomputer A computer system in which the central processing unit is built as a single, tiny semiconductor chip or as a small number of chips.

microprocessor Also called CPU. The “brain” of a computer. The primary computer chip that determines the relative speed and capabilities of the computer.

MIDI (musical instrument digital interface) MIDI is a standard that describes the interface between a computer and a device for simulating musical instruments. Rather than sending large sound samples, a computer can simply send “instructions” to the instrument describing pitch, tone, and duration of a sound. MIDI files are therefore very efficient. Because a MIDI file is made up of

a set of instructions rather than a copy of the sound, it is easy to modify each component of the file. Additionally, it is possible to program many channels, or “voices,” of music to be played simultaneously, creating symphonic sound.

MIME (Multipurpose Internet Mail Extensions) MIME is a standard for attaching binary files (such as executables and images) to the Internet’s text-based mail (24-Kbps packet size). The first packet of information received contains information about the file.

mini audio connector A very popular, 1/8-inch diameter connector used to transmit two audio signals; perfect for stereo sound.

Mini-PCI A specialized form of PCI designed for use in laptops.

mini power connector A type of connector used to provide power to floppy disk drives.

mini-DIN A very popular small connection most commonly used for keyboards and mice.

MIPS (millions of instructions per second) Used for processor benchmarks.

mirrored volume A volume that is mirrored on another volume. *See also* mirroring.

mirroring Also called **drive mirroring**. Reading and writing data at the same time to two drives for fault tolerance purposes. Considered RAID level 1.

MMC (Microsoft Management Console) A new means of managing a system, introduced by Microsoft with Windows 2000. The MMC allows an Administrator to customize management tools by picking and choosing from a list of snap-ins. Some snap-ins that are available are the Device Manager, Users and Groups, and Computer Management.

MMU (memory management unit) A chip or circuit that translates virtual memory addresses into physical addresses and may implement memory protection.

MMX (multimedia extensions) A set of specific CPU instructions that enables a CPU to handle many multimedia functions, such as digital signal

processing. Introduced with the Pentium CPU, these instructions are now used on all x86 CPUs.

mobile CPU A CPU designed for use in portable computers that uses much less power than a normal, desktop CPU.

modem (modulator/demodulator) A device that converts a digital bit stream into an analog signal (modulation) and converts incoming analog signals back into digital signals (demodulation). The analog communications channel is typically a telephone line, and the analog signals are typically sounds.

Molex connector A type of computer power connector. CD-ROM drives, hard drives, and case fans all use this type of connector. A Molex connector is keyed to prevent it from being inserted into a power port improperly.

motherboard A flat piece of circuit board that resides inside your computer case. The motherboard has a number of connectors on it; you can use these connectors to attach a variety of devices to your system, including hard drives, CD-ROM drives, floppy disk drives, and sound cards.

motherboard book A valuable resource when installing a new motherboard. The motherboard book normally lists all the specifications about a motherboard, including the type of memory and type of CPU that should be used with the motherboard.

mount point A drive that functions like a folder mounted into another drive.

mouse An input device that enables a user to manipulate a cursor on the screen in order to select items.

MP3 Short for MPEG, Layer 3. MP3 is a type of compression used specifically for turning high-quality digital audio files into much smaller, yet similar sounding, files.

MPA (Microsoft Product Activation) Introduced by Microsoft with the release on Windows XP, Microsoft Product Activation prevents unauthorized use of Microsoft's software by requiring a user to activate the software.

MSCONFIG The executable file that runs the System Configuration Utility, a utility found in Windows that enables a user to configure a system's boot files and critical system files. Often used for the name of the utility, as in "just run MSCONFIG."

MS-DOS (Microsoft Disk Operating System) The first operating system released by Microsoft.

multiboot A type of OS installation in which multiple operating systems are installed on a single machine. Can also refer to kicking a device several times in frustration.

multimeter A device that is used to measure voltage, amperage, and resistance.

multiplexer A device that merges information from multiple input channels to a single output channel.

multiread The ability of most modern CD-ROM drives to read a wide variety of discs is called MultiRead. Modern CD-ROMs can read CD-ROM, CD-R, and CD-RW discs.

multisession drive A recordable CD drive that is capable of burning multiple sessions onto a single recordable disc. A multisession drive also has the ability to “close” a CD-R so that no further tracks can be written to it.

multitasking The process of running multiple programs or tasks on the same computer at the same time.

My Computer An applet that allows a user to access a complete listing of all fixed and removable drives contained within a system.

My Documents Introduced with Windows 98, the My Documents folder provides a convenient place for a user to store their documents, log files, and any other type of files.

native resolution The resolution on an LCD monitor that matches the physical pixels on the screen. CRTs do not have fixed pixels and therefore do not have a native resolution.

NBTSTAT A command-line utility used to check the current NetBIOS name cache on a particular machine. The utility compares NetBIOS names to their corresponding IP addresses.

NDS (Novell Directory Services) The default security and directory system for Novell NetWare 4.x and 5.x. Organizes users, servers, and groups into a hierarchical tree.

NetBEUI (NetBIOS Extended User Interface) A protocol supplied with all Microsoft networking products that operates at the Transport layer. Also a protocol suite that includes NetBIOS. NetBEUI does not support routing.

NetBIOS (network basic input/output system) A protocol that operates at the Session layer of the OSI seven-layer model. This protocol creates and manages connections based on the names of the computers involved.

NetBIOS name A computer name that identifies both the specific machine and the functions that machine performs. A NetBIOS name consists of 16 characters: 15 characters of a name, with a 16th character that is a special suffix that identifies the role the machine plays.

NETSTAT A command-line utility used to examine the sockets-based connections open on a given host.

network A collection of two or more computers interconnected by telephone lines, coaxial cables, satellite links, radio, and/or some other communication technique. A computer network is a group of computers that are connected together and that communicate with one another for a common purpose.

network ID A number that identifies the network on which a device or machine exists. This number exists in both IP and IPX protocol suites.

newsgroup The name for discussion groups on Usenet.

nibble A unit of four bits.

NIC (network interface card) An expansion card that enables a PC to physically link to a network.

NiCd (nickel-cadmium) A type of battery that was used in the first portable PCs. Heavy and inefficient, these batteries also suffered from a memory effect that could drastically shorten the overall life of the battery. *See also* NiMH (nickel metal hydride), Li-Ion (lithium ion).

NiMH (nickel metal hydride) A type of battery used in portable PCs. NiMH batteries had fewer issues with the “memory” effect than NiCd batteries. NiMH batteries have been replaced by lithium-ion batteries. *See also* NiCd (nickel-cadmium), Li-Ion (lithium ion).

nit A value used to measure the brightness of an LCD display. A typical LCD display has a brightness of between 100 and 400 nits.

node A member of a network or a point where one or more functional units interconnect transmission lines.

noise Undesirable signals bearing no desired information and frequently capable of introducing errors into the communication process.

non-system disk or disk error An error that occurs during the boot process. Common causes for this error are leaving a non-bootable floppy disk in the floppy disk drive while the computer is booting.

non-volatile A type of memory that retains data even if power is removed.

normal backup A full backup of every selected file on a system. This type of backup turns off the archive bit after the backup.

Northbridge The chip that connects a CPU to memory, the PCI bus, Level 2 cache, and AGP activities; it communicates with the CPU through the FSB. Newer Athlon 64-bit CPUs feature an integrated Northbridge.

NOS (network operating system) An NOS is a standalone operating system or part of an operating system that provides basic file and supervisory services over a network. Although each computer attached to the network will have its own OS, the NOS describes which actions are allowed by each user and coordinates distribution of networked files to the user who requests them.

notification area Located by default at the right edge of the Windows taskbar, the notification area contains icons representing background processes, and also contains the system clock and volume control. Most users call this area the System Tray.

ns (nanosecond) A billionth of a second. Light travels 11 inches in one nanosecond.

NTBOOTDD.SYS A critical Windows system file only for PCs booting to SCSI drives.

NTDETECT.COM One of the critical Windows startup files.

NTFS (NT File System) A robust and secure file system that was introduced by Microsoft with Windows NT. NTFS provides an amazing array of configuration options for user access and security. Users can be granted access to data on a file-by-file basis. NTFS enables object-level security, long filename support, compression, and encryption.

NTFS permissions A set of restrictions that determine the amount of access given to a particular user on a system using NTFS.

NTLDR A Windows NT/2000/XP boot file. Launched by the MBR or MFT, NTLDR looks at the BOOT.INI configuration file for any installed operating systems.

NVIDIA A company that is one of the foremost manufacturers of graphics cards and chipsets.

NWLink Also called **IPX/SPX-Compatible Protocol**. Microsoft's implementation of IPX/SPX. *See also* IPX/SPX.

object A system component that is given a set of characteristics and can be managed by the operating system as a single entity.

ohm(s) Electronic measurement of a cable's impedance.

OS (operating system) A series of programs and code that create an interface so that a user can interact with a system's hardware, for example, DOS, Windows, and Linux.

OS X Pronounced "ten" rather than "ex"; the current operating system on Apple Macintosh computers. Based on a Unix core, early versions of OS X ran on Motorola-based hardware; current versions run on Intel-based hardware.

OSI (Open Systems Interconnect) An international standard suite of protocols, defined by the International Organization for Standardization (ISO), that implements the OSI reference model for network communications between computers.

OSI seven-layer model An architecture model based on the OSI protocol suite that defines and standardizes the flow of data between computers. The seven layers are:

Layer 1 The **Physical layer** defines hardware connections and turns binary into physical pulses (electrical or light). Repeaters and hubs operate at the Physical layer.

Layer 2 The **Data Link layer** identifies devices on the Physical layer. MAC addresses are part of the Data Link layer. Bridges operate at the Data Link layer.

Layer 3 The **Network layer** moves packets between computers on different networks. Routers operate at the Network layer. IP and IPX operate at the Network layer.

Layer 4 The **Transport layer** breaks data down into manageable chunks. TCP, UDP, SPX, and NetBEUI operate at the Transport layer.

Layer 5 The **Session layer** manages connections between machines. NetBIOS and Sockets operate at the Session layer.

Layer 6 The **Presentation layer**, which can also manage data encryption, hides the differences between various types of computer systems.

Layer 7 The **Application layer** provides tools for programs to use to access the network (and the lower layers). HTTP, FTP, SMTP, and POP3 are all examples of protocols that operate at the Application layer.

overclocking To run a CPU or video processor faster than its rated speed.

P1 connector A type of connector used to provide power to ATX motherboards.

P4 12V connector A type of connector used to provide additional 12-volt power to motherboards that support Pentium 4 and later processors.

P8 and P9 connectors A type of connector used to provide power to AT-style motherboards.

packet Basic component of communication over a network. A group of bits of fixed maximum size and well-defined format that is switched and transmitted as a single entity through a network. It contains source and destination address, data, and control information.

paragraph A unit of 64 binary bits; eight bytes. Not a commonly used term.

parallel port A connection for the synchronous, high-speed flow of data along parallel lines to a device, usually a printer.

parity A method of error detection where a small group of bits being transferred are compared to a single “parity” bit that is set to make the total bits odd or even. The receiving device reads the parity bit and determines if the data is valid based on the oddness or evenness of the parity bit.

partition A section of the storage area of a hard disk. A partition is created during initial preparation of the hard disk, before the disk is formatted.

partition table A table located in the boot sector of a hard drive that lists every partition on the disk that contains a valid operating system.

password reset disk A special type of floppy disk that can enable a user to recover a lost password without losing access to any encrypted, or password-protected, data.

PATA (parallel ATA) A disk drive implementation that integrates the controller on the disk drive itself. *See also* ATA, IDE, SATA.

patch A small piece of software released by a software manufacturer that is used to correct a flaw or problem with a particular piece of software.

patch cables Short (2–5 foot) UTP cables that connect patch panels to hubs.

patch panel A panel containing a row of female connectors (ports) that terminate the horizontal cabling in the equipment room. Patch panels facilitate cabling organization and provide protection to horizontal cabling.

path The route the operating system must follow to find an executable program stored in a subdirectory.

PC Card Credit card–sized adapter cards that add functionality in many notebook computers, PDAs, and other computer devices. PC Cards come in 16-bit and CardBus parallel format and ExpressCard serial format. *See also* PCMCIA.

PCI (peripheral component interconnect) A design architecture for the expansion bus on the computer motherboard, which enables system components to be added to the computer. PCI is a “local bus” standard, meaning that devices added to a computer through this port will use the processor at the motherboard’s full speed (up to 33 MHz), rather than at the slower 8 MHz speed of the regular bus. In addition to moving data at a faster rate, PCI moves data 32 or 64 bits at a time, rather than the 8 or 16 bits that the older ISA buses supported.

PCIe (PCI Express) The serialized successor to PCI and AGP, which uses the concept of individual data paths called lanes. A PCIe slot may use any number of lanes, although single lanes ($\times 1$) and 16 lanes ($\times 16$) are the most common on motherboards.

PCL A printer control language created by Hewlett-Packard and used on a broad cross-section of printers.

PCMCIA (Personal Computer Memory Card International Association) A consortium of computer manufacturers who devised the PC Card standard for credit card-sized adapter cards that add functionality in many notebook computers, PDAs, and other computer devices.

PDA (personal digital assistant) A handheld computer that blurs the line between the calculator and computer. Early PDAs were calculators that enabled the user to program in such information as addresses and appointments. Modern PDAs, such as the Palm and PocketPC, are fully programmable computers. Most PDAs use a pen/stylus for input rather than a keyboard. A few of the larger PDAs have a tiny keyboard in addition to the stylus.

peer-to-peer network A network in which each machine can act as both a client and a server.

Pentium Name given to the fifth and later generations of Intel microprocessors; has a 32-bit address bus, 64-bit external data bus, and dual pipelining. Also used for subsequent generations of Intel processors—the Pentium Pro, Pentium II, Pentium III, and Pentium 4. The Pentium name was retired after the introduction of the Intel Core CPUs.

peripheral Any device that connects to the system unit.

PGA (pin grid array) A popular CPU package where a CPU is packaged in a ceramic material and a large number of pins extend from the bottom of the package. There are many variations on PGA.

Phoenix Technologies Major producer of BIOS software for motherboards.

phosphor An electro-fluorescent material used to coat the inside face of a cathode ray tube (CRT). After being hit with an electron, it glows for a fraction of a second.

photo CD A compressed image format developed by Kodak that allows for many photos to be stored on a single CD-ROM.

photosensitive drum An aluminum cylinder coated with particles of photosensitive compounds that is used in a laser printer. The photosensitive drum is usually contained within the toner cartridge.

physical address Defines a specific machine without any reference to its location or network. A MAC address is an example of a physical address.

pin 1 A designator used to ensure proper alignment of floppy disk drive and hard drive connectors.

ping (packet Internet groper) Slang term for a small network message (ICMP ECHO) sent by a computer to check for the presence and aliveness of another. Used to verify the presence of another system. Also the command used at a prompt to ping a computer.

PIO (programmable input/output) Using the address bus to send communication to a peripheral. The most common way for the CPU to communicate with peripherals.

PIO mode A series of speed standards created by the Small Form Factor committee for the use of PIO by hard drives. The PIO modes range from PIO mode 0 to PIO mode 4.

pipeline A processing methodology where multiple calculations take place simultaneously by being broken into a series of steps. Often used in CPUs and video processors.

pixel (picture element) In computer graphics, the smallest element of a display space that can be independently assigned color or intensity.

platen The cylinder that guides paper through an impact printer and provides a backing surface for the paper when images are impressed onto the page.

platform Hardware environment that supports the running of a computer system.

plug A hardware connection with some sort of projection, which connects to a port.

Plug and Play (PnP) A combination of smart PCs, smart devices, and smart operating systems that automatically configure all the necessary system resources and ports when you install a new peripheral device.

POP3 (Post Office Protocol) Also called **point of presence**. Refers to the way e-mail software such as Eudora gets mail from a mail server. When you obtain a

SLIP, PPP, or shell account you almost always get a POP account with it; and it is this POP account that you tell your e-mail software to use to get your mail.

port (input/output) A predefined combination of I/O address and IRQ assigned to a physical serial or parallel port. They have names that start with “COM” for serial ports and “LPT” for parallel ports. For example, COM1, one of the preset designations for serial ports, is defined as I/O address 3F8 with IRQ 4.

port (physical connection) The part of a connector into which a plug is inserted. Physical ports are also referred to as jacks.

port or port number In networking, the number used to identify the requested service (such as SMTP or FTP) when connecting to a TCP/IP host. Some example port numbers include 80 (HTTP), 20 (FTP), 69 (TFTP), 25 (SMTP), and 110 (POP3).

port replicator A device that plugs into a USB port or other specialized port that offers common PC ports, such as serial, parallel, USB, network, and PS/2. By plugging your notebook computer into the port replicator, you can instantly connect it to non-portable components such as a printer, scanner, monitor, or a full-sized keyboard. Port replicators are typically used at home or in the office with the non-portable equipment already connected.

POST (power-on self test) A basic diagnostic routine completed by a system at the beginning of the boot process. The POST checks to make sure that a display adapter is installed and that a system’s memory is installed; then it searches for an operating system before handing over control of the machine to an operating system, if one is found.

POST cards A diagnostic tool used to identify problems that occur during the POST. These cards usually fit into a PCI slot and have a series of LED indicators to indicate any problems that occur during the POST. *See also* POST (power-on self test).

PostScript A language defined by Adobe Systems, Inc. for describing how to create an image on a page. The description is independent of the resolution of the device that will actually create the image. It includes a technology for defining the shape of a font and creating a raster image at many different resolutions and sizes.

POTS (plain old telephone service) *See* PSTN.

power conditioning The process of ensuring and adjusting incoming AC wall power to as close to standard as possible. Most UPS devices provide power conditioning.

power supply A device that provides the electrical power for a PC. A power supply converts standard AC power into various voltages of DC electricity in a PC.

power supply fan A small fan located in a system power supply that draws warm air from inside the power supply and exhausts it to the outside.

Power User(s) The second most powerful account and group type in Windows after Administrator/Administrators.

ppm (pages per minute) A measure of the speed of a printer.

PPP (Point-to-Point Protocol) A protocol that enables a computer to connect to the Internet through a dial-in connection and enjoy most of the benefits of a direct connection. PPP is considered to be superior to SLIP because of its error detection and data compression features, which SLIP lacks, and the ability to use dynamic IP addresses.

PPTP (Point-to-Point Tunneling Protocol) Protocol that works with PPP to provide a secure data link between computers using encryption.

primary corona A wire, located near the photosensitive drum in a laser printer, that is charged with extremely high voltage in order to form an electric field, enabling voltage to pass to the photosensitive drum, thus charging the photosensitive particles on the surface of the drum.

primary partition The partition on a Windows hard drive designated to store the operating system.

print resolution The quality of a print image.

printer An output device that can print text or illustrations on paper. Microsoft uses the term to refer to the software that controls the physical print device.

program, programming A series of binary electronic commands sent to a CPU to get work done.

promiscuous mode A mode of operation for a network interface card where the NIC processes all packets that it sees on the cable.

prompt A character or message provided by an operating system or program to indicate that it is ready to accept input.

proprietary Technology unique to a particular vendor.

protected mode The operating mode of a CPU allowing more than one program to be run while ensuring that no program can corrupt another program currently running.

protocol An agreement that governs the procedures used to exchange information between cooperating entities; usually includes how much information is to be sent, how often it is sent, how to recover from transmission errors, and who is to receive the information.

protocol stack The actual software that implements the protocol suite on a particular operating system.

protocol suite A set of protocols that are commonly used together and operate at different levels of the OSI seven-layer model.

proxy server A device that fetches Internet resources for a client without exposing that client directly to the Internet. Most proxy servers accept requests for HTTP, FTP, POP3, and SMTP resources. The proxy server will often cache, or store, a copy of the requested resource for later use. A common security feature in the corporate world.

PSTN (public switched telephone network) Also called POTS (plain old telephone service). Most common type of phone connection that takes your sounds—translated into an analog waveform by the microphone—and transmits them to another phone.

QIC (quarter-inch cassette or cartridge) Tape backup cartridges that use quarter-inch tape.

queue The area where objects wait their turn to be processed. Example: the printer queue, where print jobs wait until it is their turn to be printed.

Quick Launch menu A toolbar that enables you to launch commonly-used programs with a single click.

QVGA Video display mode of 320×240 .

RAID (redundant array of inexpensive devices) A way of creating a fault-tolerant storage system. There are six levels. Level 0 uses byte-level striping and provides no fault tolerance. Level 1 uses mirroring or duplexing. Level 2 uses bit-level striping. Level 3 stores error-correcting information (such as parity) on a separate disk, and uses data striping on the remaining drives. Level 4 is level 3 with block-level striping. Level 5 uses block level and parity data striping.

RAID-5 volume A striped set with parity. *See also* RAID (redundant array of inexpensive devices).

RAM (random access memory) Memory that can be accessed at random, that is, in which any memory address can be written to or read from without touching the preceding address. This term is often used to mean a computer's main memory.

RAMDAC (random access memory digital-to-analog converter) The circuitry used on video cards that support analog monitors to convert the digital video data to analog.

raster The horizontal pattern of lines that form an image on the monitor screen.

RDRAM (Rambus DRAM) A patented RAM technology that uses accelerated clocks to provide very high-speed memory.

read-only attribute A file attribute that does not allow a file to be altered or modified. This is helpful when protecting system files that should not be edited.

real-time The processing of transactions as they occur rather than batching them. Pertains to an application in which response to input is fast enough to affect subsequent inputs and guide the process, and in which records are updated immediately. The lag from input time to output time must be sufficiently small for acceptable timeliness. Timeliness is a function of the total system: missile guidance requires output within a few milliseconds of input, scheduling of steamships requires response time in days. Real-time systems respond in milliseconds, interactive systems in seconds, and batch systems in hours or days.

Recovery Console A command-line interface boot mode for Windows that is used to repair a Windows 2000 or Windows XP system that is suffering from massive OS corruption or other problems.

Recycle Bin When files are “deleted” from a modern Windows system, they are moved to the Recycle Bin. To permanently remove files from a system, they must be emptied from the Recycle Bin.

refresh The process of repainting the CRT screen, causing the phosphors to remain lit (or change).

REGEDIT.EXE A program used to edit the Windows registry.

REGEDT32.EXE A program used to edit the Windows registry. REGEDT32.EXE is available in Windows 2000 and XP only.

register A storage area inside the CPU used by the onboard logic to perform calculations. CPUs have many registers to perform different functions.

registry A complex binary file used to store configuration data about a particular system. To edit the Registry, a user can use the applets found in the Control Panel or REGEDIT.EXE or REGEDT32.EXE.

remote access The ability to access a computer from outside of the building in which it is housed. Remote access requires communications hardware, software, and actual physical links.

Remote Desktop Connection The Windows XP tool to enable a local system to graphically access the desktop of a remote system.

repeater A device that takes all of the data packets it receives on one Ethernet segment and re-creates them on another Ethernet segment. This allows for longer cables or more computers on a segment. Repeaters operate at Level 1 (Physical) of the OSI seven-layer model.

resistor Any material or device that impedes the flow of electrons. Electronic resistors measure their resistance (impedance) in ohms. *See also* ohm(s).

resolution A measurement for CRTs and printers expressed in horizontal and vertical dots or pixels. Higher resolutions provide sharper details and thus display better-looking images.

restore point A system snapshot created by the System Restore utility that is used to restore a malfunctioning system. *See also* system restore.

RG-58 Coaxial cabling used for 10Base2 networks.

RIMM (not an abbreviation) An individual stick of Rambus RAM.

RIS (Remote Installation Services) A tool introduced with Windows 2000 that can be used to initiate either a scripted installation or an installation of an image of an operating system onto a PC.

riser card A special adapter card, usually inserted into a special slot on a motherboard, that changes the orientation of expansion cards relative to the motherboard. Riser cards are used extensively in slimline computers to keep total depth and height of the system to a minimum.

RJ (registered jack) UTP cable connectors, used for both telephone and network connections. RJ-11 is a connector for four-wire UTP; usually found in telephone connections. RJ-45 is a connector for eight-wire UTP; usually found in network connections.

RJ-11 *See* RJ (registered jack).

RJ-45 *See* RJ (registered jack).

ROM (read-only memory) The generic term for non-volatile memory that can be read from but not written to. This means that code and data stored in ROM cannot be corrupted by accidental erasure. Additionally, ROM retains its data when power is removed, which makes it the perfect medium for storing BIOS data or information such as scientific constants.

root directory The directory that contains all other directories.

router A device connecting separate networks that forwards a packet from one network to another based on the network address for the protocol being used. For example, an IP router looks only at the IP network number. Routers operate at Layer 3 (Network) of the OSI seven-layer model.

RS-232C A standard port recommended by the Electronics Industry Association for serial devices.

Run dialog box A command box designed to enable users to enter the name of a particular program to run; an alternative to locating the icon in Windows.

S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) A monitoring system built into hard drives.

S/PDIF (Sony/Philips Digital Interface Format) A digital audio connector found on many high-end sound cards. This connector enables a user to connect their computer directly to a 5.1 speaker system or receiver. S/PDIF comes in both a coaxial and an optical version.

safe mode An important diagnostic boot mode for Windows that causes Windows to start only running very basic drivers and turning off virtual memory.

sampling The process of capturing sound waves in electronic format.

SATA (serial ATA) A serialized version of the ATA standard that offers many advantages over PATA (parallel ATA) technology, including new, thinner cabling, keyed connectors, and lower power requirements.

ScanDisk A utility included with Windows designed to detect and repair bad sectors on a hard disk.

SCSI (small computer system interface) A powerful and flexible peripheral interface popularized on the Macintosh and used to connect hard drives, CD-ROM drives, tape drives, scanners, and other devices to PCs of all kinds. Because SCSI is less efficient at handling small drives than IDE, it did not become popular on IBM-compatible computers until price reductions made these large drives affordable. Normal SCSI enables up to seven devices to be connected through a single bus connection, whereas Wide SCSI can handle 15 devices attached to a single controller.

SCSI chain A series of SCSI devices working together through a host adapter.

SCSI ID A unique identifier used by SCSI devices. No two SCSI devices may have the same SCSI ID.

SCSI-1 The first official SCSI standard. SCSI-1 is defined as an 8-bit, 5-MHz bus capable of supporting eight SCSI devices.

SCSI-2 Another SCSI standard that was the first SCSI standard to address all aspects of SCSI in detail. SCSI-2 defined a common command set that allowed all SCSI devices to communicate with one another.

SCSI-3 The latest SCSI standard that offers transfer rates up to 320 MBps.

SD (Secure Digital) A very popular format for flash media cards; also supports I/O devices.

SDRAM (synchronous DRAM) A type of DRAM that is synchronous, or tied to the system clock. This type of RAM is used in all modern systems.

SE (single-ended) A term used to describe SCSI-1 devices that used only one wire to communicate a single bit of information. Single-ended SCSI devices are vulnerable to common-mode noise when used in conjunction with SCSI cables over 6 meters in length.

SEC (single-edge cartridge) A radical CPU package where the CPU was contained in a cartridge that snapped into a special slot on the motherboard called *Slot 1*.

sector A segment of one of the concentric tracks encoded on the disk during a low-level format. A sector holds 512 bytes on data.

sector translation The translation of logical geometry into physical geometry by the onboard circuitry of a hard drive.

segment The bus cable to which the computers on an Ethernet network connect.

serial port A common connector on a PC used to connect input devices (such as a mouse) or communications devices (such as a modem).

server A computer that shares its resources, such as printers and files, with other computers on a network. An example of this is a Network File System Server that shares its disk space with a workstation that does not have a disk drive of its own.

service pack A collection of software patches released at one time by a software manufacturer.

services Background programs running in Windows that provide a myriad of different functions such as printer spooling and wireless networking.

SETUPLOG.TXT A log file that tracks the complete installation process, logging the success or failure of file copying, Registry updates, and reboots.

share-level security Security system in which each resource has a password assigned to it; access to the resource is based on knowing the password.

shareware A program protected by copyright; holder allows (encourages!) you to make and distribute copies under the condition that those who adopt the software after preview pay a fee to the holder of the copyright. Derivative works are not allowed, although you may make an archival copy.

shell A term that generally refers to the user interface of an operating system. A shell is the command processor that is the actual interface between the kernel and the user.

shunt A tiny connector of metal enclosed in plastic that creates an electrical connection between two posts of a jumper.

SIMM (single inline memory module) A type of DRAM packaging distinguished by having a number of small tabs that install into a special connector. Each side of each tab is the same signal. SIMMs come in two common sizes: 30-pin and 72-pin.

simple volume A type of volume created when setting up dynamic disks. A simple volume acts like a primary partition on a dynamic disk.

single-session drive An early type of CD-R drive that required for a disc to be burned in a single session. This type of drives has been replaced by multisession drives. *See also* multisession drive.

slimline A motherboard form factor used to create PCs that were very thin. NLX and LPX were two examples of this form factor.

slot covers Metal plates that cover up unused expansion slots on the back of a PC. These items are useful in maintaining proper airflow through a computer case.

smart battery A new type of portable PC battery that tells the computer when it needs to be charged, conditioned, or replaced.

SmartMedia A format for flash media cards; no longer used with new devices.

SMM (System Management Mode) A special CPU mode that enables the CPU to reduce power consumption via the selective shutdown of peripherals.

SMTP (Simple Mail Transport Protocol) The main protocol used to send electronic mail on the Internet.

snap-ins Small utilities that can be used with the Microsoft Management Console.

SNMP (Simple Network Management Protocol) A set of standards for communication with devices connected to a TCP/IP network. Examples of these devices include routers, hubs, and switches.

SO DIMM (small outline DIMM) A type of memory used in portable PCs because of its small size.

social engineering The process of using or manipulating people inside the networking environment to gain access to that network from the outside.

socket A combination of a port number and an IP address that uniquely identifies a connection. Also a mounting area for an electronic chip.

soft power A characteristic of ATX motherboards. They can use software to turn the PC on and off. The physical manifestation of soft power is the power switch. Instead of the thick power cord used in AT systems, an ATX power switch is little more than a pair of small wires leading to the motherboard.

soft-off by PWRBTN A value found in the BIOS of most ATX motherboards. This value controls the length of time that the power button must be depressed in order for an ATX computer to turn off. If the on/off switch is set for a four-second delay, you must hold down the switch for four seconds before the computer cuts off.

software A single group of programs designed to do a particular job; always stored on mass storage devices.

sound card An expansion card that can produce audible tones when connected to a set of speakers.

Sounds and Audio Devices A Control Panel applet used to configure audio hardware and software in Windows XP.

Southbridge The Southbridge is part of a motherboard chipset. It handles all the inputs and outputs to the many devices in the PC.

spanned volume A volume that uses space on multiple dynamic disks.

SPD (serial presence detect) Information stored on a RAM chip that describes the speed, capacity, and other aspects of the RAM chip.

spool A scheme that enables multiple devices to write output simultaneously to the same device, such as multiple computers printing to the same printer at the same time. The data is actually written to temporary files while a program called a *spooler* sends the files to the device one at a time.

SPS (standby power supply or system) A device that supplies continuous clean power to a computer system immediately following a power failure. *See also* UPS (uninterruptible power supply).

SRAM (static RAM) A type of RAM that uses a flip-flop type circuit rather than the typical transistor/capacitor of DRAM to hold a bit of information. SRAM does not need to be refreshed and is faster than regular DRAM. Used primarily for cache.

standard account A type of user account in Windows Vista that has limited access to a system. Accounts of this type cannot alter system files, cannot install new programs, and cannot edit some settings using the Control Panel without supplying an administrator password. Replaces the Limited accounts in Windows XP.

standouts Small connectors that screw into a computer case. A motherboard is then placed on top of the standouts, and small screws are used to secure the motherboard to the standouts.

Start menu A menu that can be accessed by clicking the Start button on the Windows taskbar. This menu enables you to see all programs loaded on the system and to start them.

startup disk A bootable floppy disk that contains just enough files to perform basic troubleshooting from an A:\ prompt.

stick The generic name for a single physical SIMM, RIMM, or DIMM.

STP (shielded twisted pair) A popular cabling for networks composed of pairs of wires twisted around each other at specific intervals. The twists serve to reduce interference (also called *crosstalk*). The more twists, the less interference. The cable has metallic shielding to protect the wires from external interference. Token Ring networks are the only common network technology that uses STP, although Token Ring more often now uses UTP.

stripe set Two or more drives in a group that are used for a striped volume.

subdirectories A directory that resides inside of another directory.

subnet In a TCP/IP internetwork, each independent network is referred to as a subnet.

subnet mask The value used in TCP/IP settings to divide the IP address of a host into its component parts: network ID and host ID.

subwoofer A powerful speaker capable of producing extremely low-frequency sounds.

super I/O chip A chip specially designed to control low-speed, legacy devices such as the keyboard, mouse, and serial and parallel ports.

superuser Default, all-powerful account in UNIX/Linux.

surge suppressor An inexpensive device that protects your computer from voltage spikes.

SVGA (super video graphics array) Video display mode of 800×600 .

swap file A name for the large file used by virtual memory.

switch A device that filters and forwards traffic based on some criteria. A bridge and a router are both examples of switches.

SXGA Video display mode of 1280×1024 .

SXGA+ Video display mode of 1400×1050 .

synchronous Describes a connection between two electronic devices where neither must acknowledge (“ACK”) when receiving data.

system attribute A file attribute used to designate important system files, like CONFIG.SYS or WIN.INI.

system BIOS The primary set of BIOS stored on an EPROM or Flash chip on the motherboard. Defines the BIOS for all the assumed hardware on the motherboard, such as keyboard controller, floppy drive, basic video, RAM, etc.

system bus speed The speed at which the CPU and the rest of the PC operates; set by the system crystal.

system crystal The crystal that provides the speed signals for the CPU and the rest of the system.

system fan The name of any fan controlled by the motherboard but not directly attached to the CPU.

System Monitor A utility that can be used to evaluate and monitor system resources, like CPU usage and memory usage.

system resources System resources are I/O addresses, IRQs, DMA channels, and memory addresses.

System Restore A utility in Windows Me that enables you to return your PC to a recent working configuration when something goes wrong. System Restore returns your computer’s system settings to the way they were the last time you remember your system working correctly—all without affecting your personal files or e-mail.

System ROM The ROM chip that stores the system BIOS.

System Tools menu A menu that can be accessed by selecting Start | Accessories | System Tools. In this menu, you can access tools like System Information and Disk Defragmenter.

system tray Located by default at the right edge of the Windows taskbar, the system tray contains icons representing background processes, and also contains the system clock. Accurately called the “notification area.”

system unit The main component of the PC in which the CPU, RAM, CD-ROM, and hard drive reside. All other devices like the keyboard, mouse, and monitor connect to the system unit.

Tablet PC A small portable computer distinguished by the use of a touch screen with stylus and handwriting recognition as the primary mode of input. Also the name of the Windows operating system designed to run on such systems.

Task Manager The Task Manager shows all running programs, including hidden ones. You access the Task Manager by pressing CTRL-ALT-DEL. You can use it to shut down an unresponsive application that refuses to close normally.

taskbar Located by default at the bottom of the desktop, the taskbar contains the Start button, the system tray, the Quick Launch bar, and buttons for running applications.

TCP (Transmission Control Protocol) Part of the TCP/IP protocol suite, TCP operates at Layer 4 (the Transport layer) of the OSI seven-layer model. TCP is a connection-oriented protocol.

TCP/IP (Transmission Control Protocol/Internet Protocol) A set of communication protocols developed by the U.S. Department of Defense that enables dissimilar computers to share information over a network.

TCP/IP services A set of special sharing functions unique to TCP/IP. The most famous is Hypertext Transfer Protocol (HTTP), the language of the World Wide Web. Telnet and Ping are two other widely-used TCP/IP services.

tera- A prefix that usually stands for the binary number 1,099,511,627,776 (2^{40}). When used for mass storage, often shorthand usage for a trillion bytes.

terabyte 1,099,511,627,776 bytes.

terminal A “dumb” device connected to a mainframe or computer network that acts as a point for entry or retrieval of information.

terminal emulation Software that enables a PC to communicate with another computer or network as if the PC were a specific type of hardware terminal.

termination The use of terminating resistors to prevent packet reflection on a network cable.

terminator A resistor that is plugged into the end of a bus cable to absorb the excess electrical signal, preventing it from bouncing back when it reaches the end of the wire. Terminators are used with coaxial cable and on the ends of SCSI chains. RG-58 coaxial cable requires resistors with a 50-ohm impedance.

terminal A “dumb” device connected to a mainframe or computer network that acts as a point for entry or retrieval of information.

text mode During a Windows installation, the period when the computer displays simple textual information on a plain background, before switching to full graphical screens. During this part of the installation, the system inspects the hardware, displays the EULA for you to accept, enables you to partition the hard drive, and copies files to the hard drive, including a base set of files for running the graphical portion of the OS.

TFT (thin film transistor) A type of LCD screen. *See also* active matrix.

thermal compound Also called **heat dope**. A paste-like material with very high heat transfer properties; applied between the CPU and the cooling device, it ensures the best possible dispersal of heat from the CPU.

thread The smallest logical division of a single program.

TIA/EIA (Telecommunications Industry Association, Electronics Industry Association) The standards body that defines most of the standards for computer network cabling. Most of these standards are defined under the TIA/EIA 568 standard.

toner The toner in a laser printer is a fine powder made up of plastic particles bonded to iron particles, used to create the text and images during the printing process.

toner cartridge The object used to store the toner in a laser printer. *See also* laser printer and toner.

TRACERT Also called **TRACEROUTE**. A command-line utility used to follow the path a packet takes between two hosts.

traces Small electrical connections embedded in a circuit board.

trackball A pointing device distinguished by a ball that is rolled with the fingers.

transfer corona A thin wire, usually protected by other thin wires, that applies a positive charge to the paper during the laser printing process, drawing the negatively charged toner particles off of the drum and onto the paper.

triad A group of three phosphors—red, green, blue—in a CRT.

TWAIN (technology without an interesting name) A programming interface that enables a graphics application, such as a desktop publishing program, to activate a scanner, frame grabber, or other image-capturing device.

UAC (User Account Control) A feature in Windows Vista that enables Standard accounts to do common tasks and provides a permissions dialog when Standard *and* Administrator accounts do certain things that could potentially harm the computer (such as attempt to install a program).

UART (universal asynchronous receiver/transmitter) A UART is a device that turns serial data into parallel data. The cornerstone of serial ports and modems.

UDP (User Datagram Protocol) Part of the TCP/IP protocol suite, UDP is an alternative to TCP. UDP is a connectionless protocol.

ultra DMA A hard drive technology that enables drives to use direct memory addressing. Ultra DMA mode 3 drives—called ATA/33—have data transfer speeds up to 33 MBps. Mode 4 and 5 drives—called ATA/66 and ATA/100, respectively—transfer data at up to 66 MBps for mode 4 and 100 MBps for mode 5. Both modes 4 and 5 require an 80-wire cable and a compatible controller in order to achieve these data transfer rates.

unattended install A method to install Windows without user interaction.

unintentional install An installation of a USB device before installing the drivers, creating a nightmare of uninstalling and reinstalling software.

UNIX A popular computer software operating system developed by and for programmers at Bell Labs in the early 1970s, used on many Internet host systems because of its portability across different platforms.

Upgrade Advisor The first process that runs on the XP installation CD. It examines your hardware and installed software (in the case of an upgrade) and provides a list of devices and software that are known to have issues with XP. You can also run the Upgrade Advisor as a standalone tool without going through the install process.

upgrade installation An installation of Windows on top of an earlier installed version, thus inheriting all previous hardware and software settings.

UPS (uninterruptible power supply) A device that supplies continuous clean power to a computer system the whole time the computer is on. Protects against power outages and sags. The term UPS is often used mistakenly when people mean SPS (Standby Power Supply).

upstream A term used to define the part of a USB connection that plugs into a USB hub.

URL (uniform resource locator) An address that defines the location of a resource on the Internet. URLs are used most often in conjunction with HTML and the World Wide Web.

USB (universal serial bus) A general-purpose serial interconnect for keyboards, printers, joysticks, and many other devices. Enables hot-swapping and daisy-chaining devices.

user account A container that identifies a user to an application, operating system, or network, including name, password, user name, groups to which the user belongs, and other information based on the user and the OS or NOS being used. Usually defines the rights and roles a user plays on a system.

user interface A visual representation of the computer on the monitor that makes sense to the people using the computer, through which the user can interact with the computer.

user level security A security system in which each user has an account and access to resources is based on user identity.

user profiles A collection of settings that correspond to a specific user account and may follow the user regardless of the computer at which he or she logs on. These settings enable the user to have customized environment and security settings.

UTP (unshielded twisted pair) A popular type of cabling for telephone and networks, composed of pairs of wires twisted around each other at specific intervals. The twists serve to reduce interference (also called *crosstalk*). The more twists, the less interference. The cable has *no* metallic shielding to protect the wires from external interference, unlike its cousin, STP. 10BaseT uses UTP, as do

many other networking technologies. UTP is available in a variety of grades, called *categories*, as follows:

- Category 1 UTP** Regular analog phone lines—not used for data communications.
- Category 2 UTP** Supports speeds up to 4 megabits per second.
- Category 3 UTP** Supports speeds up to 16 megabits per second.
- Category 4 UTP** Supports speeds up to 20 megabits per second.
- Category 5 UTP** Supports speeds up to 100 megabits per second.

V standards Standards established by CCITT for modem manufacturers to follow (voluntarily) to ensure compatible speeds, compression, and error correction.

VESA (Video Electronics Standards Association) A consortium of computer manufacturers that standardized improvements to common IBM PC components. VESA is responsible for the Super VGA video standard and the VLB bus architecture.

VGA (Video Graphics Array) The standard for the video graphics adapter that was built into IBM's PS/2 computer. It supports 16 colors in a 640×480 pixel video display, and quickly replaced the older CGA (Color Graphics Adapter) and EGA (Extended Graphics Adapter) standards.

VIA Technologies Major manufacturer of chipsets for motherboards. Also produces Socket 370 CPUs through its subsidiary Cyrix that compete directly with Intel.

video card An expansion card that works with the CPU to produce the images that are displayed on your computer's display.

virtual Pertaining to a device or facility that does not physically exist, yet behaves as if it does. For example, a system with 4 MB of virtual memory may have only 1 MB of physical memory plus additional (slower and cheaper) auxiliary memory. Yet programs written as if 4 MB of physical memory were available will run correctly.

virtual memory A section of a system's hard drive that is set aside to be used when physical memory is unavailable or completely in use.

virus A program that can make a copy of itself without you necessarily being aware of it; some viruses can destroy or damage files, and generally the best protection is always to maintain backups of your files.

virus definition or data file These files are also called signature files depending on the virus protection software in use. These files enable the virus protection software to recognize the viruses on your system and clean them. These files should be updated often.

VIS (viewable image size) A measurement of the viewable image that is displayed by a CRT rather than a measurement of the CRT itself.

voice coil motor A type of motor used to spin hard drive platters.

volatile Memory that must have constant electricity in order to retain data. Alternatively, any programmer six hours before deadline after a non-stop, 48-hour coding session, running on nothing but caffeine and sugar.

volts (V) The pressure of the electrons passing through a wire is called voltage and is measured in units called volts (V).

volume A physical unit of a storage medium, such as tape reel or disk pack, that is capable of having data recorded on it and subsequently read. Also refers to a contiguous collection of cylinders or blocks on a disk that are treated as a separate unit.

volume boot sector The first sector of the first cylinder of each partition has a boot sector called the volume boot sector, which stores information important to its partition, such as the location of the operating system boot files.

VRAM (video RAM) A type of memory in a video display adapter that's used to create the image appearing on the CRT screen. VRAM uses dual-ported memory, which enables simultaneous reads and writes, making it much quicker than DRAM.

VRM (voltage regulator module) A small card supplied with some CPUs to ensure that the CPU gets correct voltage. This type of card, which must be used with a motherboard specially designed to accept it, is not commonly seen today.

VRR (vertical refresh rate) A measurement of the amount of time it takes for a CRT to draw a complete screen. This value is measured in hertz, or cycles per second. Most modern CRTs have a VRR of 60 Hz or better.

VxD (virtual device driver) A special type of driver file used to support older Windows programs. Windows protection errors take place when VxDs fail to load or unload. This usually occurs when a device somehow gets a device driver in both CONFIG.SYS and SYSTEM.INI or the Registry.

WAN (wide area network) A geographically dispersed network created by linking various computers and local area networks over long distances, generally using leased phone lines. There is no firm dividing line between a WAN and a LAN.

warm boot A system restart performed after the system has been powered and operating. This clears and resets the memory, but does not stop and start the hard drive.

wattage (watts or W) The amount of amps and volts needed by a particular device to function is expressed as how much wattage (watts or W) that device needs.

WAV (Windows Audio Format) The default sound format for Windows.

wave table synthesis A technique that supplanted FM synthesis, wherein recordings of actual instruments or other sounds are embedded in the sound card as WAV files. When a particular note from a particular instrument or voice is requested, the sound processor grabs the appropriate prerecorded WAV file from its memory and adjusts it to match the specific sound and timing requested.

wildcard A character used during a search to represent search criteria. For instance, searching for “*.doc” will return a list of all files with a .doc extension, regardless of the filename. “*” is the wildcard in that search.

Windows 2000 The Windows version that succeeded Windows NT; it came in both Professional and Server versions.

Windows 9x A term used collectively for Windows 95, Windows 98, and Windows Me.

Windows NT The precursor to Windows 2000, XP, and Vista, which introduced many important features (such as HAL and NTFS) used in all later versions of Windows.

Windows Vista The latest version of Windows; comes in many different versions for home and office use, but does not have a Server version.

Windows XP The version of Windows that replaced both the entire Windows 9x line and Windows 2000; does not have a Server version.

WINS (Windows Internet Name Service) A name resolution service that resolves NetBIOS names to IP addresses.

word A unit of 16 binary digits or two bytes.

worm A worm is a very special form of virus. Unlike other viruses, a worm does not infect other files on the computer. Instead, it replicates by making copies of itself on other systems on a network by taking advantage of security weaknesses in networking protocols.

WQUXGA Video display mode of 2560×1600 .

WS (wait state) A microprocessor clock cycle in which nothing happens.

WSXGA Video display mode of 1440×900 .

WSXGA+ Video display mode of 1680×1050 .

WUXGA Video display mode of 1920×1200 .

WVGA Video display mode of 800×480 .

WWW (World Wide Web) A system of Internet servers that support documents formatted in HTML and related protocols. The Web can be accessed using Gopher, FTP, HTTP, Telnet, and other tools.

WXGA Video display mode of 1280×800 .

xD-Picture Card A very small flash media card format developed by Olympus and Fujifilm. xD stands for Extreme Digital.

Xeon A line of Intel CPUs designed for servers.

XGA (Extended Graphics Array) Video display mode of 1024×768 .

XMS (extended memory services) The RAM above 1 MB that is installed directly on the motherboard, and is directly accessible to the microprocessor. Usually shortened to simply “extended memory.”

ZIF (zero insertion force) socket A socket for CPUs that enables insertion of a chip without the need to apply pressure. Intel promoted this socket with its overdrive upgrades. The chip drops effortlessly into the socket's holes, and a small lever locks it in.